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GLEANINGS

IN BEE CULTURE

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GLEANNINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

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GLAD TO SEE deep entrances favored for cellar wintering, page 173. Two inches is a good depth.

A DEAD QUEEN is reported in *Schweiz. Bztg.*, with a hole in its abdomen out of which crept a two-inch parasitic thread-worm.

A STRONG COLONY gathers about 3 lbs. of pollen in a day—enough to fill both sides of a comb 8 in. square.—*Ill. Monatsblatler*. No wonder combs become pollen-clogged when no brood is reared.

OUTDOOR BEES “drawn up into a mass not much larger than a good-sized snowball,” page 172. Might be a trifle more definite. Boys “in this locality” make snowballs two feet through, besides some of other sizes.

H. MARGIOL, in *Ill. Monatsblatler*, says that, when hauling bees to the buckwheat fields, it is a bad plan to try to cool them by spraying water on them; the temporary cooling is succeeded by greater heat from the moist air.

“THE PRACTICE of sending honey to commission men was severely condemned in several of the meetings.” Yet those same condemners may find times when they don’t know what else to do with their honey, and will be glad to send it to some reliable commission man.

TOP ENTRANCES are said, in *Apiculteur*, to increase the yield of honey 20 per cent. I can imagine that there might be some increase over hives with the entrance at bottom, and that too small for hot weather. For years I’ve had piles four or five stories high, an entrance to each story, and an entrance at back of cover. I can’t say whether they stored more honey, but I can say

that none of them ever swarmed. But it doesn’t work for comb honey.

CUBE SUGAR, running about 80 pieces to the pound, is all ready to feed bees without any melting or other preparation. Just drop the cubes over or between the frames, and there you are. So says M. Guyot in *Bulletin de la Societe des Agriculteurs de France*. Now, why is not cube sugar just the same as granulated sugar made into candy? Costs only half a cent more (by the quantity), and would save some trouble.

SPEAKING of ordering a lot more things than one can eat, page 190, A. I. Root says: “Perhaps some who read these pages may consider you and me penurious, and say we make a fuss about trifles.” Old friend, do you know what makes most Americans go on in that wasteful way? Cowardice, pure cowardice. They’re afraid of being thought stingy, and so they are wicked. And yet the best specimen of broad-minded manhood that ever lived said, “Gather up the broken pieces which remain over, that nothing be lost.”

MIDWINTER FLIGHTS have been condemned chiefly, if not solely, because the bees were uneasy afterward. I wonder if C. Davenport has not for the first time given us the explanation, page 181—also the remedy: *the bees must be returned inside of 36 hours*. Here’s my best bow, friend Davenport. [It had never occurred to me that any one would ever think of keeping bees out for such a flight for more than one day. So far, Feb. 27, we have not had a good day; but the bees are more quiet this spring because the cellar-doors have been open for some time past.—ED.]

CANDY. “Do not stir, as that makes it mealy or grainy,” p. 185. “Make it boil, and stir it. . . we have much more moisture in the stirred sugar candy, and we want all the moisture we can possibly have.”—A B C. Now “where are we at”? [But the trouble with stirred or mealy candy is that so much of it is wasted. The granules separate and rattle down between the frames on the bottom-board, and are carried

out in the spring. But say, doctor, why do bees need moisture in candy when the precipitation from their breath is sufficient to supply them with all they need? Why is not a good rock candy, half honey and half sugar, more economical, and better than any other artificial substitute for combs of sealed stores?—Ed.]

REPLYING to Straw, page 11, asking "what number of bees must be reached before they will stop freezing and begin to starve?" the *Modern Farmer* says: "A normal colony, doctor, such a colony as one would expect to come safely through the winter in a cellar." Then a colony weak enough does freeze, does it? And if a little stronger, wouldn't it freeze with cold a little longer and stronger? And wouldn't any colony freeze with cold long enough and strong enough? After all, does it make any difference which way you call it? Have colonies strong, and with plenty of food within reach, and they'll neither starve nor freeze.

A RUBEROID ROOF now covers my shop. Has any one tried it for hive-covers? [This material has been recommended in our columns, but we have never tried it. If there is really rubber in its composition it will be short lived, I am afraid. We are using with much satisfaction here Carey's magnesia roofing on our barns and out-buildings. Neponset paper on our hive-covers has been on now the third season, and is still doing excellent service. I see no reason why it should not continue to do so year after year. One correspondent said he had had it in use for nine years, and sent us a nine-year-old cover in proof. The boards were somewhat rotted, but the paper was in a fine state of preservation.—Ed.]

TWO WOMEN not a thousand miles from here are indignant at the statement, page 173, that the small man who has taken boarding at the residence of the junior editor has been allowed to struggle through five days of the late cold spell with never a sign of a name. They say if his folks are too poor or too stingy to afford him a name let them ship him to Marengo, and they'll furnish him two or three names of the most approved style, together with a full assortment of snugglings. [We have about a dozen names we have been considering. We were going to give him the initials of A. I. R., call him Amos Irving, but grandpa objects. We might name him after the sage of Marengo, but "Charles" is too common, his mother says. I call him, at present, "Bub" in spite of wife's protest. No, we'll board and lodge him here.—Ed.]



WHAT IS HONEY?

The definition of honey that is adopted by the chemists and law-makers is a matter of most serious concern to bee-keepers. If a definition is adopted that would declare honey that has a mixture of honey-dew impure or adulterated, there is not a bee-keeper in the land who might not at some time be brought before a court of justice on the charge of selling adulterated honey. The sources of honey-dew are so many and various that there is probably no locality where it may not at some time be produced. The fact that none has ever been noticed in a given locality is no safeguard. Next year it may be there in quantity. It may be bad or it may be good in quality. It may come at a time when nectar from the flowers is scarce, so that the bees will gather all they can of it, or it may come when the flowers are yielding so plentifully that the bees will gather little or none of it.

I believe that honey-dew is much more common than is generally supposed, and that many times it is gathered and stored by bees whose owners know nothing of the source from which it comes, though they believe it to be from flowers. Twice in my experience (once in Illinois and once in Colorado) my bees have stored considerable quantities of honey-dew, and many times I have found them working on it when it did not make much of a show in the hives. Some of this honey-dew was of very poor quality, while other kinds were very palatable, although usually rather dark in color. The point is that, in many localities at least, it is practically impossible to keep honey-dew out of the honey crop. No doubt, too, there are places where fruit-juices and perhaps other substances are liable to find their way into the honey. To say that such honey may be classed as adulterated would be to make bee-keeping a much more precarious business than it already is.

Colorado has a pure-honey law in which it is stated that "For the purposes of this act the word 'honey' shall be held to be the nectar of flowers gathered and stored by honey-bees; and it shall be held to have been adulterated when glucose, cane sugar, grape sugar, or any other substance or compound has been been mixed with or added to it or fed to bees." Now, if we are to go by the first part of this sentence many in this locality in 1902 sold as honey what would not under this act be legally entitled to that name. Yet in the latter part, and elsewhere in the act, it would seem that adulteration requires some overt act on the part of man in the way of mixing or feeding.

As usual at this time of the year we are flooded with copy—good printable matter. I do not say this because we wish our friends to stop writing, but because it explains why some matter necessarily has to be delayed. We can not always publish in the order of receipt of manuscript, as some subjects require immediate attention.

It might be held, though, that, even if the mixing is done by bees of a substance not the nectar of flowers, though gathered from natural sources, the seller of the product would be subject to fine. This would be a serious matter if the law should be strictly enforced, and would cause great annoyance and expense to honest producers.

No doubt it would lessen the labors and perhaps increase the importance of the chemists if a definition were adopted that would narrow down as closely as possible the question of what is to be considered as honey; but we must remember that nature does not often work on such narrow lines as to make hard and fast definitions possible. If honey were an artificial product, a definite compound, it might be well enough to allow the chemists to make definitions to suit themselves as to what should constitute honey; but as it is, it is the bee-keeper or the naturalist, fully conversant with the habits of the honey-gatherers, who should be allowed to fix the standard for honey, so far as that can be done. My definition of honey would be, "Honey is the sweet substance gathered by bees from natural sources, and stored in their combs." This might be expanded and elaborated somewhat, but I think it is fairly comprehensive. It might be more concise to say, "Honey is the liquid gathered by bees from natural sources, and stored in their combs."

Let us hear from others as to their idea of what a definition of honey should be, and see if we can not evolve one that will satisfy the chemists without doing injustice to ourselves.

COLORADO HONEY.

The Colorado bee-keeper who attempts to market his honey in the East is apt to meet in some quarters a prejudice against Colorado honey, especially comb honey. Why this is so is hard for him to understand. He believes his alfalfa and sweet-clover honey are the finest in the world. In this he is borne out by the testimony of the majority of those who use these after a thorough acquaintance with other honeys. Why, then, this prejudice? If we try to analyze the reasons for it we find that there are two of them, one of which has a very reasonable foundation in fact, while I think the other has but very little.

Some years ago, while I still lived in Illinois, something of a crusade was started in the bee journals against the quality of sweet-clover honey. The sweet-clover honey I was producing at that time I considered to be of the very nicest quality, both in appearance and flavor; and in selling it I received many compliments, both from consumers and retail merchants, on its quality. I was puzzled to reconcile what I knew to be fact with the reported opinions of others. In looking for light on this subject I had an interesting conversation with one of the leading commission men shortly before my removal to this State. He said that both sweet-clover and alfalfa honey were objectionable from his standpoint—sweet-clover, because of its

bad flavor; alfalfa, because of its lack of flavor. His theory in regard to the latter was that people bought alfalfa well at first, because of its beautiful appearance, and that they liked it well enough at first, but that, because of a lack of pronounced flavor, they got tired of it and concluded that they did not care for any more honey. In support of his contention that the flavor of sweet-clover honey was poor I was invited out into his storeroom, where I sampled some lots of sweet-clover honey that had just been received. While I did not consider their flavor at all bad, they were certainly not first grade, and the reason was very evident to me. Although it was all comb honey, it had the unmistakable taste of an unripened article.

Sweet-clover honey, when first gathered, has a rather rank unpleasant taste which becomes still more pronounced if it is removed from the hive before it is ripe, and improperly stored thereafter. This honey had evidently been kept in a cool room after its removal from the hive, and had deteriorated in consequence. Yet sweet-clover honey, properly ripened and kept, is equal to almost any thing that is produced in the line of honey.

The claim that people became tired of alfalfa honey was new to me; and in a selling-trip among the retail merchants of several cities soon thereafter I took pains to investigate this point wherever I found alfalfa being handled. I was unable to find any one who did not declare that there was no foundation whatever for this theory. My own experience since coming here confirms this. There is more honey consumed here in Grand Junction, where practically all the honey is from alfalfa and sweet clover, than in any other city of its size that I am familiar with. It is very evident that they do not become tired of it here.

In the course of my investigations, however, I learned of another objection to Colorado comb honey that had a much better foundation. This was its greater tendency to granulate in the comb than Eastern honey. I came across a carload of Colorado honey which would have to be sold for a great deal less than the buyers had paid because it had granulated in the combs. Western consumers do not object very greatly to candied comb honey, because they are more or less used to it; but in Eastern communities, unaccustomed to that sort of article, it is almost unsalable. Most people are sure it is adulterated, and those who are not do not care for it that way. On this account we find some honey-dealers, especially in the extreme eastern States, who will not buy Colorado comb honey at all, or unless it is very low in price. Now, here is a very real and stubborn fact which we must study and overcome if possible. I think the way around it is not difficult. To make clear the remedy that I propose I shall have to relate some of my own experience.

Some of the older readers of GLEANINGS

may remember that, years ago, I was a strenuous advocate of ripening comb honey by keeping it in a very warm room. I told therein how the small room in which my honey was stored was kept warm by means of a large lamp which was kept burning for several weeks in the fall, and whenever the weather was cold thereafter. Later I used a hard-coal stove in my honey-room, aiming always to keep the temperature up to nearly 100° until the honey was thoroughly ripened, never allowing it to get very cold afterward. Although it was a very rare thing for honey to granulate in the combs in Illinois, the combs were liable to crack in cold weather. Besides avoiding this, I felt that I was well repaid for the trouble and expense by the superior body and flavor of the honey and its improved keeping and shipping qualities. I will say, in passing, that I never knew more than one bad case of honey granulating in the comb in Illinois. I once bought the honey crop of a deceased bee-keeper; and when I went to get it I found that it had been stored in a cold building that was almost absolutely air-tight. This honey was all granulated solid before the middle of the winter.

In the fall of 1903 I sent ten cases of honey to the Colorado State Fair, and was fortunate enough to secure the first prize on it. Moreover, it attracted the attention of the State World's Fair Commissioners, who secured it to send to St. Louis. I felt a little doubtful about keeping it so long in good condition, but supposed it would be replaced by new honey soon after the fair opened. Soon after this our county commissioners bought of me another lot of honey for a county exhibit. I urged them strongly to wait until they could get new honey the following season; but they replied that they wanted to make an early exhibit, and that they would replace it with fresh honey when they could. I, however, secured permission to keep the honey myself until they were ready to ship it. So, after wrapping the cases carefully to protect them from dust I piled them up alongside of the furnace in my basement and awaited their instructions as to when it should be shipped.

They had got over their hurry, though; and although they were frequently reminded of it, the winter, spring, and summer passed, and it was not until a week or two before the meeting of the National convention in the fall of 1904 that it was sent to St. Louis. My first idea was to replace it with 1904 honey; but after going carefully over the honey, which had not been touched for nearly a year, I decided it would be better for Colorado to send it just as it was, and try to have the point emphasized in its exhibition that the honey was more than a year old. Whether this was done or not I do not know, as I did not go to the fair; but on one of those lots of honey I was awarded a gold medal—the only one, I believe, that was awarded to an individual exhibit of honey alone, while the other received a silver medal. Now, the honey that was sent last,

that had been kept over an entire year, was in practically just as good condition as when packed the season before. It was not granulated nor in any way damaged by its long keeping. Yet this was Colorado alfalfa honey, which, we have been told, must be hurried to market before the weather gets cold, in order to have it sold before it granulates. If Colorado honey a year old is good enough to be awarded the highest prize at a world's fair, is it not rather the fault of the management than of the honey if it can not ordinarily be got to market without any danger of granulating before it has been consumed? If there is any place on this earth where honey ought to ripen thoroughly, without any particular attention, it would seem to be the arid region of Colorado. Yet even here it seems to be necessary to use special care in regard to the place where the honey is stored in order to have it keep in good condition and stand cold weather without cracking and granulating. If you can utilize the summer sun to ripen it thoroughly after it is taken from the hives, well and good. But if you can not do this by natural means, you should do it artificially. In either case, if you have any regard for the fair fame of Colorado honey and for the future of your honey market, see to it that, as long as your honey remains in your hands, it is stored in the warmest and driest place you can find to keep it in. We can not control the conditions in regard to our honey after it leaves our hands, but we can do much to insure its reaching the consumer in good condition by a thorough preparation before we sell it.

In order to prove my position more thoroughly, I am trying the experiment on a larger scale, and have a considerable quantity of comb honey in an upper room of a furnace-heated house, which I expect to be in just as good condition next September as it was last.

Grand Junction, Col.



Stenog is short for one who writes
Something some one else indites;
But the one we call "Stenog"
Needs no aid to make his pen jog.

I rather suspect my good friend Dr. Webber, of Santa Rosa, Cal., got the above off at my expense, although Dr. Miller betrayed the secret.

Mr. S. J. Baldwin, one of the best-known bee-men of England, died in this country, at Elizabeth, N. J., on the 30th of last December. During his sojourn on this side of the

ocean he made a visit to Medina which will be long and pleasantly remembered. He was 73 years of age. He was stunned by a stroke of lightning several years ago, since which time his health has steadily declined. The *British Bee Journal* gives a very interesting sketch of his life.

Just three days before the death of Mr. Baldwin, father Time claimed as his own one who was, if anybody could claim that distinction, the best-known bee-keeper in England, his name being familiar in his own land and America. I refer to John H. Howard, of Holme, Peterboro. The *British Bee Journal* well says, "Probably no other man in the appliance trade was favorably known to so wide a circle of bee-keepers as John Howard." He was called away without warning, by heart failure. The very warm tribute Mr. Cowan pays to Mr. Howard is fully deserved.

Bee-keepers on both sides of the water will be interested in the following from the *British Bee Journal*.

JOHN DZIERZON.

On January 16 this venerable bee-keeper entered upon his ninety-fifth year, having been born in 1811. He has been a bee-keeper for seventy years, and has a world-wide reputation for his work in advancing apiculture. The principal scientific discovery of his was parthenogenesis—that is, reproduction without fecundation. This was known to exist in other insects in the first half of the eighteenth century, but it was in 1835 that Dr. Dzierzon commenced to think about it, and in 1842 to 1844 he made known his ideas in *Frauentorfer Blaetter*. In 1845 he published his discovery in the *Bienenzeitung*, and this drew the attention of scientists to the subject. "The Dzierzon Theory," as this was called, was subjected to the most searching investigation by Siebold, Leuckart, and others, and, although still denied by some, is generally accepted as true. The *Allgemeine Zeitung für Bienenzucht* prints some pretty verses dedicated to this veteran, and also gives extracts from papers eulogizing him at the time of his bee-keeping jubilee twenty years ago, and mentions the honors conferred upon him. We are also sorry to hear that Dr. Dzierzon is at present unwell, and he has our best wishes for his recovery.

The Superintendent of Railroads of Alsace and Loraine, Germany, has issued the following circular to his employees, which I translate from our Spanish exchange, *El Colmenero Espanol*:

The success obtained in the cultivation of bees has induced us to recommend it warmly to our employees. Although it presents certain difficulties at first, and requires a certain degree of knowledge, yet we are persuaded that, after certain trials and several attempts, our employees will overcome these obstacles. Their efforts will be splendidly rewarded with the crop given by the bees. The installation of an apiary should be directed by an experienced bee-keeper. We would especially advise our employees to become members of the Apicultural Society, whose president and members will illustrate the subject to them, and give them suitable advice. The station masters, and especially the watchmen, should be members of these societies, with power to initiate those in their charge in the science of bee-keeping.

The administration will accord a loan to those employees whose pecuniary position will not permit them to make a start in bees. Likewise it will undertake to plant seeds of honey-bearing flowers along the road.

The same policy has been adopted in Austria and other parts of Europe. It not only helps the employees to gain a very important part of the sweets needed in every household, but forms a more friendly bond between workman and employer.

The following is a translation of an article in *Bienenvater*, made by Fr. Greiner, Naples, N. Y. It is entitled "Bee-keeping on the Shores of the Danube; Price and Market of Honey in Vienna."

I commenced bee-keeping in 1890 with three box hives. How I increased my apiary during the following 14 years, partly by purchase, partly by natural swarming, need not be told. During the first three years there was no honey to sell; but during the next three years the crops ran between 140 and 200 pounds from the yard. This amount was easily disposed of in my little village at 40 cents per pound. It appeared that 200 pounds was about the maximum I could find sale for in the place. The bees, however, kept increasing, so did the honey crops, and soon I had a surplus of 200 pounds, yes, even 300, above what I could sell to my neighbors, and the question arose: "What can I do with it?" I put out a sign, "Honey for Sale." I advertised in the papers, putting my advertisement on wrapping-papers of the groceries; I left some honey at the stores, canvassed bakeries, drugstores, etc., and always carried samples of honey in glass vials with me, but I failed to make sale for such a quantity of honey. I succeeded, however, in increasing the sale in my home market by 120 pounds, and this was the limit. What now? Must I sell cheaper or reduce the number of colonies? It happened just at this time that an old schoolmate of my wife, then living in Vienna, called on us. After taking in the situation she suggested, "Bring your honey to Vienna. I warrant you a sale of five pounds in the house where I live." This was considered, and after a few days my wife went to Vienna and took five pounds of honey with her, which she had no trouble in selling at our old established price. After one week she made a second trip and took 10 pounds with her which she sold; and after four weeks more a third trip was made, and another ten pounds was disposed of. One family recommended our honey to another, till finally we about monopolized the honey market in this street, having honey customers in as many as twenty different houses. To-day, after five years of persistent efforts, my wife has sold, from June 16 to Dec. 10, as much as 1072 pounds of extracted honey, all at 40 cents. It seemed pretty hard work for the first two years to peddle honey. It went somewhat against our grain. Still, wife was always courteously received everywhere, even invited to take meals, etc. She enlightened people, and overcame the mistrust and the notions held by the general run of people. To think that she succeeded selling nearly 1100 pounds of honey in one year!—what honey-producer could make a better showing?

Vienna has a population of 1,500,000. There are 3000 streets and 3300 houses. A great deal of honey could be disposed of here in this city if the bee-keepers would go to work systematically. But one must not be ashamed of hard and honest work.

COMMENTS BY THE TRANSLATOR.

It is an undisputed fact that there is not honey enough produced, either in Germany or Austria, to supply the demand; and still the great problem is not how to produce but how to sell. European conditions are such that "honest work" is just enough humiliating and degrading so that hundreds of bee-keepers shrink from peddling the product of their bees. It is next to an impossibility for the city consumer to meet the producer face to face. The more refined, the better posted and educated the latter is, the greater the barrier that separates him from the first. He would be ashamed to look other people in the face if it was known he "peddled." The American may do any kind of work and preserve his dignity.

A late article of F. Dickel, in *Die Biene*, "Proposition how to make Bee-keeping more Popular and Better Paying," concentrates its force upon the sale of honey in particular. There seems difficulty in reaching consumers. On the other hand, consumers have difficulty in finding the producers of honey. They would like to purchase a pure article, but have no way of finding out where to get it. Dickel has the idea of establishing a honey-exchange, and advertising the same in the city papers, also appointing agents in the different cities to make the sales, for which service the agent is to receive nothing. A price is to be agreed upon. The publishing of articles on bees, of general interest, he also recommends.

From all the above it will be seen that bee-keepers in other lands are wrestling with the same problem we are in America, and are considering the same means to solve it.



THERE was a large amount of clover all over the country last fall. The heavy precipitation of snow, affording both moisture and protection, is a favorable omen.

IN many localities it will probably be advisable to give the indoor bees an outdoor flight the first warm day, and put them back in the cellar until there is settled warm weather.

EVERY thing is looking favorable for a good flow of honey in Southern California this season; but it is not too late yet for an entire failure, for the rains to insure the crop are yet to come, if I understand it.

OUR readers may not have observed the fact, but we are giving them right along as a regular diet 104 pages a month; and it looks now as if we should have to increase that number, at least temporarily, until the large amount of matter we now have on hand is used up.

IT appears from newspaper reports that a glucose-mixer at Gloversville, N. Y., was convicted of selling honey made of 75 per cent glucose and 25 per cent honey, and was fined \$50. It is said this was the first prosecution under the new anti-adulteration law. The moral effect of this first conviction will be good. Let the good work go on.

THE RUSSIAN TIN BOXES FOR CHUNK HONEY.

WE are getting a good deal of correspondence in regard to the Russian tin boxes for holding comb honey, as illustrated and described by A. E. Titoff on p. 19. It is a little surprising to see how many are interested in the possibilities there presented. Not a few wish us to secure boxes for them, and just now we are corresponding with various makers of stamped ware, and hope to be able to give prices later.

HONEY MARKET UNUSUALLY DULL.

THE comb-honey lies that cropped out so frequently last summer and fall, and the talk about adulterated honey in the magazines and health journals, have done their deadly work, for the honey market seems to be in a very bad way throughout the country just now. We expect, however, that conditions will improve as soon as new honey is out. There is usually a stagnation in prices at this time of year; but this spring they seem to have dropped to a lower level than usual, notwithstanding the supply of last season's crop was not large.

WINTER LOSSES.

IT is too early yet to predict what the winter losses will be in the Northern States. Thus far the winter has been no severer than the previous one, and in many instances much milder. But even if it were just as severe, the bee-keepers a year ago learned a lesson on the need of thorough protection for the outdoor bees; so it is probable that such bees this winter will fare much better.

Reports show that the country between parallels 35 and 40 has suffered from the unexpected cold. As a general thing, bees in Virginia, Kentucky, Tennessee, and Missouri do not need a great deal of protection; but when an unusually severe cold wave comes, lasting a week or more, there are liable to be heavy losses. There will be no losses to speak of in the extreme southern States; and in the extreme northern States the mortality of the bees will be somewhat greater than the average, but probably not as severe as last winter.

MORE COMB-HONEY YARNS.

THESE are beginning to come to the fore again, and are hurting the honey market. The New York *Tribune*, one of the best newspapers in the whole country, in its issue for Feb. 19, under the head of "Saccharine Adulterations," in speaking of the various foods that have been adulterated, makes this statement:

Honey is also adulterated in the comb, the comb being made in part of paraffine, and saturated with a mixture of glucose and syrups.

We have already written the publishers, protesting, and offering \$1000 reward for proof that there is such a thing as manufactured comb honey on the market. We also referred them to Frank Benton, apicultural expert at Washington, D. C., and to the action taken at the last St. Louis convention, denying the existence of manufactured comb honey. But a mere protest from ourselves will not mean much unless *thousands* of our readers *write immediately* to the editor of that paper, presenting a courteous protest, and denying most emphatically the truth of the statement under consideration.

EXTRAVAGANCE IN ADVERTISING, ETC.

I PRESUME our readers are all aware that I do not like the extravagant advertisements that are now getting to be so much the rage; and perhaps some that are accepted for these columns are not entirely free from this fault. We have offended some by refusing to accept their advertisement. Dr. Miller pleasantly calls our attention to some of them as follows:

"Fifty dollars in gold for three cents" will be found in GLEANINGS for Dec. 15, page 1141. On a par with it, Jan. 1, page 9, is "\$5000 worth of live stock to be given away." It's strange that so good a paper as the *Epitomist* should resort to that sort of thing. I have some doubt of the truth of "\$5.00 worth of seeds free," page 42; and if not true, Henry Field is unwise to say

it. The same thing applies to "Given away free, poultry-punches, etc.," page 102.

You will say I'm taking a critical view. Very. The advertising pages of GLEANINGS are remarkably clean; but any thing beyond the strict truth in advertising is wrong, and, in the judgment of good advertisers, foolish. When a dozen advertisers say they have the best whisky in the world, how much do I believe in either? I've glanced through GLEANINGS, Feb. 1, and it's even cleaner, I think, than usual. Without more careful scrutiny I note only four items which might be questioned: p. 145, "The best farm paper on earth," "Best fruit paper," and, p. 146, "600,000 planters will say under oath," and "Best in the world."

We will consider the first one. It is by the *Agricultural Epitomist*, an excellent farm journal; but instead of giving \$50 in gold for 3 cents, the real truth of the matter is, they pay the \$50 to the people who hunt up subscribers to their journal. This is plainly evident if you read their advertisement all through. The \$50, etc., is simply to catch the eye, and the others are much after the same fashion. I agree with Dr. Miller in thinking it unwise for Henry Field to use such an expression in advertising his field corn. Now, those who are getting old, like Dr. Miller and myself, are very apt to lack sympathy with the younger ones who may not mean any particular harm by their extravagant statements. I wish our readers, young and old, would tell us what they may think about it. By the way, I dislike to see any farm paper, or any other class journal for that matter, keep proclaiming that theirs is the "best in the world," especially when there are so many other good and praiseworthy journals. This is a Christian nation, and most of us are trying hard to be not only courteous but Christianlike to our friends and neighbors; and some of us (I verily believe) are striving hard to love even our enemies. It is a pretty big thing just now to claim you have the *best of any thing* there is in the world.—A. I. R.

THE U. S. STANDARD FOR THE PURITY OF HONEY.

OUR readers will remember that, some time ago, I stated that the chemists of the Department of Agriculture, Washington, D. C., were about to revise the standards of honey from the standpoint of the chemist. The old schedules formerly used were defective in that they did not adequately nor properly describe the different kinds of honey on the market. There seemed to be a disposition on the part of the chemists to narrow the definition of honey in general to only the nectar of flowers stored in combs by bees, leaving out saccharine exudations of plants and exudations from certain insects called "aphides." We requested our subscribers to write to Prof. H. W. Wiley, at the Department, urging that the standard be broad enough to include honey-dew, for the reason that the product was liable to be present in any natural honey, whether the bee-keeper desired it or not. The point was right here: If honey-dew were eliminated or not mentioned, any bee-keeper might have his honey classed as "adulterated" by any chemist who would find a saccharine sub-

stance from aphides. The last bulletin, entitled "Standards of Purity for Food Products," from the office of the Secretary of Agriculture, gives the classification as follows:

1. *Honey* is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey-bees (*Apis mellifica*). It is lævo-rotatory, contains not more than twenty-five (25) per cent of water, not more than twenty-five hundredths (0.25) per cent of ash, and not more than eight (8) per cent of sucrose.
2. *Comb honey* is honey contained in the cells of comb.
3. *Extracted honey* is honey which has been separated from the uncrushed comb by centrifugal force or gravity.
4. *Strained honey* is honey removed from the crushed comb by straining or other means.

This is a vast improvement over the old schedule; moreover, it is not narrowed down to the *nectar of flowers* as was proposed. It further properly describes "extracted" and "strained" honey, but still leaves out the one thing asked for—namely, honey-dew. J. A. Green, in this issue, p. 221, proposes an excellent wording.

It is possible that we as bee-keepers did not make our representations strong enough nor soon enough. However that may be, the old definition was practically the same so far as the recognition of honey-dew was concerned—the kind of honey that comes from insects. So far no honest bee-keeper's honey has been classed as adulterated because of the presence of this product; and a chemist has advised me that probably no trouble of that kind will arise. But while we are about it, if not too late we should get the change, as there is no knowing when some innocent bee-keeper may be made the victim of an unfortunate definition. Bee-keepers know that it would be utterly impossible to keep out all trace of the product of aphides from their honey certain seasons in certain localities. There would be at most only a small amount of it—not enough to affect the flavor or the quality. Ninety-five per cent of all marketable honey, at least, would be entirely free of it. The U. S. chemists, I know, are desirous of preventing fraud on the part of the unscrupulous. They certainly do not wish to put a hardship on a few bee-keepers who some seasons can not keep honey-dew out of their honey; and we shall hope the definition as above given will not be final. It is to be hoped that Dr. Frear and his associates will see the justice of the claim of the bee-keepers, and make the definition broad enough to include any thing that *bees* gather from *natural* sources. No bee-keeper would ask more. Producers desire the standard to be rigid enough to exclude *any foreign* substance that man may put in.

CLOSE THE ENTRANCES OF BROODING COLONIES THIS SPRING.

It will be well to sprinkle a handful or two of sawdust over the entrances of outdoor colonies, both at the home and out yards. This prevents chilling drafts when brood-rearing begins to start up, and may save much brood and not a few bees. When the weather warms up sufficiently, the bees

can easily push their way out. This suggestion has been given before several times in these columns, but it will bear repeating as a sort of reminder. The idea came originally from that 300-colony bee-keeper, Mr. W. L. Coggeshall, of West Groton, N. Y., and I know it is good.

KARO OR CORN SYRUP; IS IT BETTER THAN HONEY?

ANOTHER friend is troubled about the way a Chicago firm is advertising karo. The label reads:

Karo and honey look alike, taste alike, are alike. Mix karo with honey or honey with karo, and experts can't separate them. Even the bees can't tell which is which. In fact, karo and honey are identical, except that *karo is better than honey for less money*. Try it.

There is no doubt that such statements do a real damage to the honey business until the dear public learns better, as it surely will. Real honey is now for sale almost all over the world. Let the great honey-consuming world taste of some *good* genuine honey and then taste of the much-advertised karo. Why, it is really quite a joke to see it said in all soberness that no one can tell one from the other, and then wind up by saying that "*karo is better than honey*."—A. I. R.

RESULT OF THE LAST NATIONAL ELECTION.

WE have just received a report from the Chairman of the Board of Directors, announcing the result of the vote taken last December, but which could not be counted and reported by the Secretary, Mr. Geo. W. Brodbeck, owing to his severe illness and death, as announced in our last issue. Mr. Brodbeck kept thinking he would be better, and that he would soon be able to count the votes himself and certify the result. Growing weaker and weaker he saw that it was impossible, and accordingly delegated the work to others. His wife has just sent the result of the vote to W. F. Marks, who in turn certifies them to the various bee-journals. The result of the election is as follows:

President, J. U. Harris; Vice-president, C. P. Dadant; Secretary, W. Z. Hutchinson, who received 203 votes, and Mr. Brodbeck, who had requested to be relieved, 95; General Manager, N. E. France. E. Whitcomb, R. L. Taylor, and Udo Toepperwein were elected as directors.

SENDING BEES BY THE POUND.

IN our last issue, page 168, mention is made of sending bees by express without brood or comb. When I visited Mr. J. B. Mason, of Mechanic Falls, Me., a year ago this winter he incidentally mentioned that he had been having great success in shipping bees by the pound, that his losses were comparatively light, and the express charges were considerably below those for bees sent on combs of honey and brood. He had had a good many favorable reports, and has recently sent me one which speaks for itself.

Mr. Mason:—I want to write a few words to you in regard to a purchase that I made of you last year through our Mr. Fenderson, American Express agent.

I had one of the pounds of bees that he procured from you, and I think that they made a pretty good showing. They filled a ten-frame brood-chamber, and stored 33 one-pound sections. Don't you think that is hustling? If I remember rightly I received them the 28th of June.

Rochester, N. Y.

J. L. WELLMAN.

While this may be a sort of free advertisement for friend Mason, yet it demonstrates what *can* be done; and as it has proven to be a severe winter there may be quite a trade in bees this spring. Queen-breeders and those who have bees for sale may find quite a nice little business. As stated in our last issue, our success in sending bees by express has been unfavorable for long distances. For distances not exceeding 300 miles—that is to say, where bees would not be on the road more than 15 or 20 hours—the results were fairly good.

SHALL WE USE SECOND-HAND SQUARE CANS FOR SHIPPING HONEY?

IN this issue, page 230, appears a valuable article from L. B. Bell, and on page 240 another good item on how to clean second-hand cans for the storage of white or table honey; but so many times it is not done right that the taint of kerosene is imparted, ruining the honey and making it almost unfit for any purpose. A careful reading of these articles alone ought to save some of our subscribers in the West hundreds of dollars if they are large producers. Even the smaller producer can profit by their perusal.

Our experience with shipments of honey to Medina in second-hand cans has been generally unsatisfactory, just because bee-keepers are careless, or ignorant of what to do to make these old cans suitable for the purpose. Our honey-man says that too often producers will use cans that are rusty on the inside. The rust imparts its color to the honey, making it several shades darker. Cans that have once held gasoline are more liable to be rusty than those that have held kerosene; and too often bee-keepers suppose that gasoline-cans are free from taint, and therefore do not clean them.

The buyer has no objection to all second-hand cans filled with honey, provided the cans are properly treated before filling. A rusty can should not be used under any circumstances—that is, one that is rusty on the inside. The outside rust may not do so much damage; but if the rust is deep the can will leak.

There is some excuse for the *Western* producer in using second-hand cans, for the reason that freights are very high on new empty cans; but I question very much whether it is economy for the *Eastern* bee-keeper to use them except in some particular instances where the cans have not been rusted or otherwise injured. Perhaps it may be said that cans that have once been used for honey can be used again for the same purpose. This is true; but the suggestion has been made, and I believe it is a good one, to leave all such second-hand cans with the smearing of honey inside (because honey prevents rust), then wash and dry them out just before refilling.



IS OUR PLAN OF WORKING FOR COMB HONEY AGAINST NATURE?

"Say, Doolittle, is it not against the very nature of bees to have so many 'traps' by way of separators, T tins, queen-excluders, etc., in the production of comb honey?"

"Possibly. But what are you trying to get at?"

"Just this: Do not these things lessen our yield quite materially, and place the bees to a great disadvantage above what they were with the large open boxes, holding from 15 to 25 pounds, of our fathers?"

"When I first began bee-keeping comb honey was not put up as at the present day, as a part of the boxes used were made to hold 15 to 20 pounds, as you have just said, while the smallest boxes then made in this locality held fully six pounds. Some of these had glass sides while others had only a small piece of glass over an auger-hole, so that the owner of the bees could see through this glass to tell when the combs were completed, or when the honey was ready to take off. As time passed on, the thought originated in some enterprising bee-keeper's head that honey would sell better if stored in smaller boxes than those weighing six pounds, so we soon had the four-pound glass box, having four corner-posts and glass on all four sides. These were very tasty, and took well in the market, as the customer could see the honey on all four sides, the same being very attractive and captivating to all who saw it."

"I never heard of such a box. It must have been quite a pretty sight."

"It was. But bee-keepers were not content, so that the next we had was the Harbison box, or one holding three pounds, the same having glass on two sides. This box was used the same as its predecessors had been; namely, with the glass sides separating each from all others, while it was made long enough to hold only one comb, which was 2½ inches thick when completed."

"Did you find this as good as the larger ones?"

"With this box I had very little success, for the bees seemed very loath to work in it; and when they did so they would often try to put in three combs, which made it in very poor shape for market. For this reason I decided that it was not in accord with 'nature' for the bees to be cut up in such little clusters (as the boxes were glassed before placing in the hive) and have their combs as thick as 2½ inches. Consequently I went back to the six-pound box again, and left the matter of small boxes to others."

"And you found you were right, did you not?"

"We shall see. When the two-pound section with separators was introduced (these were the first sections in reality), I considered them as being still worse than any preceding them, for it seemed to me that the bees were divided into still smaller clusters than before."

"That is the way I reason, exactly."

"So did I; but one night while lying awake thinking on the subject I believed that I saw a difference between this way of using boxes and the old way, where glass was used on both sides of the box; for in using separators the bees were not, properly speaking, divided into little clusters as before."

"Why not?"

"Because, as the separators lacked ¼ inch of coming within reach of either the top or the bottom of the box, the bees and warmed air could pass from one to the other, to a certain extent, just the same as if no tin were there. But I feared that the tin would be a hindrance after all, so I went slowly the first year."

"What was the result with those you tried?"

"Greater than from hives worked in the old way, on an average; but as I used only a few hives I feared I was not sure in the matter, so I tried only about double the number of the year before, the season following, working the rest of the apiary with the six-pound box as before. At the end of that season I found that the sections with separators gave me the largest yield again, and the combs in these sections were simply perfect, and sold in market for two to three cents per pound more than did the six-pound boxes."

"Well, from that I suppose you adopted the sections with separators for the whole apiary?"

"No. I still had fears in the matter, so the next year I worked about half each way; but when fall came, and I found that sections were still ahead as to yield, and the same as to price, I could hesitate no longer, and adopted sections entirely for the future."

"Do you still use the two-pound sections?"

"No."

"Did you find that the bees worked as well in the one-pound section with separators as with the two?"

"Yes. But I was very loath to make this change, not so much on account of fearing that the bees would not do as great work in them as because this change would very nearly, if not quite, double the work of getting a thousand pounds of honey ready for market as was required with the two-pound sections. There was double the number to make, handle, scrape the propolis from, and crate; and I never could see aught but a mistake, on the part of bee-keepers, in rushing into these one-pound sections *in advance* of any call for the same from the consumer. It was simply a mat-

ter of seeing to how much greater an extreme one could run than his predecessor. And this craze went so far that some put forth a half-pound section, and cried 'Eureka!' over it. Mind you, the *bee-keepers* were doing this—making themselves four times the work of the past, that one could get a little ahead of the other on a small-sized section, without a single consumer asking them to go into such folly of quadrupling their work. This has always been one of the wonders to me."

"But the half-pound section did not come into general use, did it?"

"No. The bees 'kicked' against being cut up into quite so small clusters, and would not work to so good advantage as in the pound section, and so all seemed to settle down on the latter; and after the consumer got used to these small pound sections the call for two-pound sections ceased although there were some in New York city that called for the latter some time after they ceased to appear in market."

"Well, if the bees kicked on the half-pound why not on the pound and on the two-pound, to a proportional extent?"

"It would seem that they should; but from practice I find that, so far as the yield of honey is concerned, as much can be produced in these smaller sections as in any thing larger."

"Do you still use tin separators?"

"Yes."

"But is not the claim made that fences are better?"

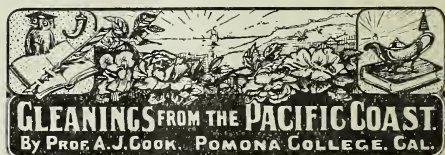
"Yes. Theory argues along the same line that you are doing, that all the 'traps' used in modern bee-keeping are a hindrance to the bees; and so the fences have been put forward to overcome this partially by allowing the bees to pass through between the boards, and thus allow of a greater circulation of heat and bees than was possible with the old whole-tin separator."

"And does this not prove correct in practice?"

"Not with me. If it did, the Betsinger arrangement, with wire cloth having meshes of a size to admit bees freely, used as separators, should as far surpass the fences as daylight does moonlight; but after a thorough trial of both, I can not see enough in favor of either, over and above my old tin separators, which have been in use since the latter seventies, to pay for an exchange. Yea, more! I can not see a particle of difference as to yield, perfect capping, or perfect filling, in favor of either, when mixed up in any super on the same colony, or, under like circumstances, with like colonies. If a colony is in good condition to produce *fancy* comb honey with one of the plans, it will produce equally nice with either plan. But I am well aware that theory, and reasoning from *man's* standpoint, would say that the greatest success would be given where the wire cloth was used, as with this the bees are inconvenienced, apparently little, if any, more than they were in the days of our fathers with their 25-pound box."

"Well, I am surprised at this. But how about the queen-excluding honey-boards?"

"When these first came before the public I tried them slowly, as I did the sections with separators, using more and more each year, till, so far as I am able to see, I can say that, with me, and in my locality, they do not decrease my crop of comb honey. But I am not speaking for others, only to advise them to do as I have done in testing the matter, if they think there is a chance that, in their locality, these would not work the same. The old saying, 'Prove all things, hold fast that which is good,' is as valuable to you as to any one, and as good to-day as it ever was; and if you have doubts in this matter, this is the thing for you to do. However, he who can commence where the best bee-keepers of to-day leave off has the advantage of those who have gone all the way proving these things for themselves—at least their financial success may be greater."



GLEANINGS FROM THE PACIFIC COAST.

If I need to make any apology for this heading, I will just say that GLEANINGS from its start has always interested me very much, and I acknowledge to a partiality toward the word. The word is also quite appropriate, as I propose that these notes shall be gathered up from some of the best experience and practice of our Pacific Coast bee-keepers. I shall be very grateful to any who may contribute to these gleanings from the best pages of their experience.

FOOD OF BEES.

I was surprised to see the statement regarding the large amount of proteids to be found in honey as given in one of Dr. Miller's Straws. I suppose it was an error of the types. It would be very rare indeed to find more than a fraction of one per cent of proteid elements in any sample of honey. I quite agree with the editor that this proteid in honey is entirely unnecessary. We know that it is the work of the stomach-mouth, that interesting organ at the lower part of the honey-stomach, to remove the pollen, the only source of proteid in honey, from the nectar before it is stored in the comb or passes to the true stomach. I am sure that all experience shows that bees winter just as well if not better on honey from pure sugar syrup as that which comes from nectar gathered from the flowers. The natural source for proteid food is in the pollen, or bee-bread, and the bees need not get this from the honey. Indeed, I believe it were better if all of the proteid were removed

from the honey. That it is practically removed is certainly true.

WATER FOR BEES.

We are all aware with what avidity our pets of the hive seek the watering-trough, the brooklet, or even less attractive places, where they may sip the needed water for their sustenance. I presume many have wondered what this water is for and where it goes to. Do the bees take it for their own immediate nutrition, or do they carry it to the hive? I believe there is little doubt that it is taken by the bees for their own immediate use. It is in hot weather that the bees visit such places, and they likely need water just as other animals need the same. In the work of the body, water is all-important. The bees secure this at the pond or rill. We know that, in the case of the higher animals, water, when taken into the digestive canal, passes very quickly into the blood. I presume that bees are no exception. I doubt not that examination would show with bees, as with other animals, that, in a trice, after the water is sipped into the stomach, it has been absorbed or passed through into the blood.

Some have argued from the fact that bees are often seen around urinals that salt is necessary for bees. While I do not think that salt would be harmful, and very likely in promoting absorption would be valuable, yet in the case just mentioned it is probably the water and not the salt that attracts the bees. It proves the rather that salt is not harmful.

METABOLISM.

This may be a new word to bee-keepers, but it is a good word, and one the meaning of which should be known to us all. By metabolism we mean the work done in the body, or the functional work of an organism. We can not use any organ without resulting breakdown of tissue. It follows that the tissue must be built up. When the breakdown is more rapid than the rebuilding, then we become tired. During the night the building exceeds the tearing-down, and so with the morning comes refreshment and new vigor for the day's work. This whole process of tearing down and building up, consequent upon functional activity, we call metabolism. Destructive metabolism, or the tearing-down of tissue, is known as katabolism. This, of course, gives rise to waste, and the products of waste such as the carbon dioxide thrown out by the breath, and the excreta from the kidneys in our case, and from the malpighian tubules of the stomach in bees and other insects, may be considered the ashes of katabolism. The building-up process is known as anabolism. The requirements for this building-up are the presence of sufficient and suitable food. Perhaps the most important of the food elements is the water referred to above, though oxygen is even more imperative, for all animals must have that constantly. The word "food," as usually used, refers to the other food, which in case of bees includes the bee-bread and the honey.

FOOD OF BEES.

No bee-keeper need be told that the food of bees consists of honey and bee-bread. The honey consists of invert sugar or reducible sugar as it is often called. There is no doubt that honey is one of very best kinds of sugars to be taken as food. The sugars and starch which, when eaten, are converted into sugar in the process of digestion, are known as carbo-hydrates. They are very important food elements. While not enough when taken alone to support the body, they greatly conserve the other and more costly food elements. Honey is the most soluble and most assimilable of all the sugars. Indeed, cane sugar has to be digested before it can be utilized by the body. Bees, then, do for us what we shall have to do for ourselves if we eat cane or common sugar instead of honey. Fats probably act much as do the sugars. Alone they are not sufficient for food, but they, too, conserve the more costly proteids. The proteid food we must have, even though we may have the carbo-hydrates and fats. The proteids contain chemical elements which are absolutely necessary to the formation of tissue. We get our proteids in muscle, cheese, and there is a large amount of proteid also in beans, and much in grains. The proteids of the grains or cereals, we call gluten; that of peas and beans and clover we call legumin. It is found that the cheapest and best food regimen has a ratio of about one to five. We mean by this that there are about five times as much of the carbo-hydrates as of the proteid elements in a food of the most economic ration. In case of our cattle we can regulate this as we can also in our diet. The bees do their own mixing.

HONEY PROSPECTS FOR 1905.

As we all know, California is away at the front as a honey State, whenever we have favorable seasons. The necessity in the case is abundance of rain. The prospects for next year are exceedingly bright. We have now had over 10 inches of rain. Last year at this time we had less than one inch. Whenever we get 15 inches we can usually count on a good honey crop. It is all the better if the rain comes late in the season. This year, as last, our rains are coming late, and so will do the maximum good. Last year we had a very meager rainfall, though what we had came in a way to be all utilized, and to give us the greatest benefit. This year we are getting a large amount. It is also coming gently in a way to be taken up by the soil and fully utilized. It is an interesting fact that, though we may have an abundance of flowers, if the water supply is cut short the flowers seem powerless to secrete nectar, and thus our honey season is a failure. Though we have not the same opportunity to study this matter in the East, yet bee-keepers of the East are made familiar with the same truth. I worked with bees every year in Michigan from 1869 to late in the 80's, and never a year but we had a fair yield of honey. Then for three successive years we had very dry seasons—so

much so the pastures for stock were very poor, and the hay crop was so meager that prices ranged away up. In all of these three years, the honey crop was an entire failure. This simply proves that the plants are powerless to secrete nectar unless there is a good supply of moisture. As stated above, bee-keepers have generally supposed that it required fifteen inches of rainfall to give a good honey crop. The experience of two years ago would modify this view a little. If the rains are late, fewer are required than when they commence early in the year.



SECOND-HAND SQUARE OIL-CANS FOR HONEY.

How to Treat Them so that They will be Fit for Use; a Valuable Article from One who Knows.

BY L. B. BELL.

On page 32 the Payette Valley Bee Co. inquires for a method of cleaning kerosene-cans. As we have stored and sold from four to eight tons of honey per year for the past sixteen years in such cans, without a word of complaint, so far as we know, perhaps our experience will be worth something to the fraternity.

While on this subject I may as well give our whole system of handling this class of cans, as I believe it will prove a great economy in the hands of *careful* bee-men of the West. The high freight rates on goods as bulky as five-gallon cans cased is prohibitive to the use of new cans. We people of the West, in order to play even, in a measure, with the Standard oil people, and the railroads in some way, for making our oil cost us 40 cts. per gallon instead of 12, as in Ohio, have to use their cans and cases for our honey.

We use all the gasoline-cans we can get hold of, as they are more easily cleaned; but we also use all the kerosene-cans we get as well.

I have an old scavenger, or a "raggedy-raggedy man," who gathers my cans for me in a local mining town. I pay him 5 cents each for his trouble of collecting and holding them until I go for them. I sometimes bring home 120 in a load.

REPAIRING CANS.

When we are ready to make a job of soldering we remove the oil-caps on the cans by holding them over a hot blaze in our soldering fire-pot, until the solder starts, which operation is quite rapid with a good fire.

Next we patch any vent-holes which we find, and solder on our screw caps. Last year we got our screw caps from the American Can Co., San Francisco, Cal., or Chicago, Ill., with 1½-inch mouths and 2-inch base, which exactly fits the cans, and is a good size to fill into. When we find a can with its sides collapsed so that its capacity is small, after soldering it we straighten it by exploding 1 or 1½ drams of rifle powder as near the center of the can as we can hang it. It straightens them in a hurry. Tie the powder in a small cloth around one end of a blasting-fuse about eight inches long; cut a gash in the fuse near the other end, and put in a few grains of powder to "spit" the fuse quickly. Insert this cartridge into the opening in the can the proper distance to bring powder near the center of the can; secure by tying by a string to a ring on top of the can. "Touch the button" with a match, and the powder does the rest.

Cans thus treated may not case well for shipment, but are as good for storage for local use as any. A few experiments will teach you the amount of powder to use for different conditions of cans.

CLEANING THE CANS.

The method we have found the most satisfactory in rapidity and thoroughness is to make a solution of strong soapsuds by slicing up not less than two bars of some good laundry soap (without rosin in it is preferred) to a barrel of water. Add to this not over half a can or about ¼ lb. of concentrated lye. We then throw a steam-hose into the barrel, and boil until the soap is dissolved. We use a funnel made with the small end a little smaller than the size of the opening in the cans, to allow for expansion of the cool air in the can, and to prevent the hot suds from being blown back in your face while pouring into the cans.

We have a ¾-inch pipe running from the steam-dome of our boiler so we can get dry steam. This pipe has a perpendicular length sufficient to reach to the bottom of a can, with a valve within convenient reach of your hands. Insert this pipe in a can containing the hot suds, until the lower end of it reaches within about ½ inch of the bottom. Suspend the can in this position by a hook fastened into the ring on the can. Open your valve and let in steam enough to boil the suds, and throw it all over the inside of the can. We boil one can and fill another ready to boil, and rinse out the boiled can. We always rinse with two waters—the first time with clean hot water; the last, clean cold water. With this system one active person can clean 100 or more per day.

After draining these cans they are laid in a hot sunny place on their sides, with the opening nearest the top, to allow the remaining moisture and any odors to escape freely. We clean cans in hot sunny weather, as the sun is the most effective and convenient form of heat we have found for the volatilizing of the oil odors. We have found the use of concentrated lye in too strong a

solution to be unwise. Try a strong solution of it on bright tin, and you will observe that it has a very corrosive effect. Cans thus treated are at once attacked by the acid in honey, discoloring and injuring the flavor of the honey. We leave our cans in the sun about a week, if we are not needing them, then go over them in the heat of the day, when they are hot, and we can easily pick out any doubtful ones by the odor, and leave them for a few days longer. When sunning does not remove the odor, another suds treatment may hasten the cleaning.

Where access to a steam-plant is not possible, the same results can be obtained by the thorough shaking of the hot suds and a longer sunning.

Camp Verde, Ariz.

HOW TO RUN SUCCESSFULLY AN OUT-YARD FOR COMB HONEY.

Read at the Fulton and Montgomery County Bee-keepers' Association.

We take it for granted that we have bees and supplies for an out-apiary. Then the first thing that is to be considered is its location. I will talk from experience and not theory.

1. Have it as near home as possible without interfering with the home yard.
2. Give it the best pasture you can.
3. Protect it from heavy winds, especially from the north and west.

I do not know that I could do any better than describe right here my present out-apiary, which is run exclusively for comb honey. It is located three miles from my home yard, almost at the top of the Champion Hills, on the north side sloping down at an incline of about 200 feet to each half-mile. It is protected on the west and north by a thick hedge of plum and chokecherry-trees, and on the east and south by an orchard of apple-trees. On the south side of the yard is the honey-house, facing north and looking over the bee-yard. At the east side is a honey-cabinet for the filled surplus supers. The hives are placed in groups of twelve, with two hives on each stand arranged in a semicircle, six on each side, facing each other. The groups of hives are in rows each way, giving an alley 12 feet wide with the rear of the hives on either side. The honey-house rests on wooden blocks so it can be moved when a new location is desired. Just inside of the door, in easy reach, is a four-inch Bingham bee-smoker, two whisks, honey-knife, hive-opener, a propolis-scraper, Alley drone-traps, queen-cages, bee-veils, screw-driver, and an extension hive. Inside is a work-bench with a fair supply of tools. The bees are taken out of the cellar about ten days after we think it is time to take them out. With clean bottom-boards, and entrances closed so that about two bees can pass out at a time, they are corked up as warm and snug as possible. I don't do as much building-up by feeding in the spring as I used to. It is a slippery

piece of business with an out-apiary. But little more is done until fruit-bloom.

To run an out-apiary for comb honey successfully you must cut corners at every turn, and make as few trips as possible.

Supers with sections containing full sheets of foundation, and hives filled with frames of worker comb or wired foundation, must be prepared.

I make about sixty trips during a year, for an outyard of 125 colonies, spring count, which requires about eighty days' labor of ten hours each. With an average season this includes every thing in relation to it.

The condition of each colony is recorded by the position of a half-brick on each hive. I can step out in the yard, and in a moment tell those hives that need attention to-day, to-morrow, or the day after, without going over the whole yard. Each colony is examined about once a week, or as the season requires. Then all the bricks are re-adjusted.

At the time of removing supers I use the bee-escape under the supers, then they are removed to the honey-cabinet. Here they are totally freed from the bees, and taken to the home apiary before the sections are removed from the supers.

One thing that must not be forgotten is the settlement for the use of the premises. Whatever the consideration maybe, let it be a cash deal every time. Meet the landlord more than half way, and, after making a full payment in cash, give him a liberal supply of honey for the free favors you have received. The rule that works well at the home yard will succeed at an out-apiary.

The form of a cube is best for a brood-nest. The one that I use for comb honey is 13 by 12, and 12 inches deep. See that all drone comb is removed from the brood-chamber, and worker comb put in its place.

Almost all of my increase is by natural swarming.

Don't stand ten minutes for a little bee to get out of the way for fear it might get hurt. Let some things remain a secret to the inquisitive neighbor. A cloth lightly saturated in carbolic acid or kerosene will hustle the bees out of the supers. Bait-sections in the super are a little gold-mine to the bee-keeper. Have the honey-house at the south side of the yard, facing north. You can see the bees much more readily.

MAKING AN EXHIBIT AT THE COUNTY FAIRS.

Read at the Fulton and Montgomery County Bee-keepers' Association.

BY G. W. HAINES.

Make your entries early so the officers of the grounds will have your space ready. Even if you are sure you will be the only one to make an exhibit, do your best, for the benefit of the bee-keeping industry. Remember, good exhibits make good fairs.

Enter as many races of bees as you can,

each race with queen being in a single-frame observatory hive. I have an eight-frame observatory hive with a set of honey-boxes on top, and glass on all four sides. Hundreds of people will ask about a full-sized hive, and are surprised to learn that there are at least 30,000 bees in them, and many others at home with 50,000. When preparing this hive for an exhibit, run some of the bees back into the old hive and leave it on the old stand with some combs of brood in it, for a large colony will smother a great many bees, and look bad.

It is well to have five or six mailing-cages with queens and a few bees. Hundreds of people will ask about bees being sent by mail, and how far they can go in that small box. Many keeping a few bees will ask to see the queen and want to look her over, as they never saw one before, and those mailing-cages can be passed around.

I have lost but one mailing-cage with queen.

A great deal of pains should be taken with the honey-exhibit. The honey should be put up in as many forms as it appears in the markets of the county. Show as many kinds as possible of both comb and extracted honey, light and dark. Show also the candied form of each variety, and make some explanation concerning it. Many will say they like it best.

I find free samples a great advertisement for the bee-keepers in general. My wife handles the samples, using 12 small butter-paddles and 12 very small spoons. A pail with a wire screen one inch below the top, on which to drain the small dishes, is hung out of sight under a railing. When drained they are wiped off with a dampened cloth before using again. The greatest expense is the work. We used the most honey for samples last year, which was 15 lbs.

I was surprised at the large number who said they never knew before that there was more than one kind of honey.

In talking with people from other counties, I find they usually know some bee-keeper near them, and this is the time to tell them they can get just as many kinds and just as good honey of that bee-keeper. Often the man they know is a member of the Association.

Remember the night-watchman; show him the sample pail and spoon; tell him there is the place to eat his lunch; and if the night gets extra cold, just cover up the top air-hole in the observatory hives.

Take great pains in getting a large collection of honey-plants, pressed and mounted on white pasteboard, for many will speak of adulterated honey, and will be interested in the different honey-plants. Explain that many trees, plants, flowers, and even weeds will produce honey as good as that they are sampling, and that tons of honey go to waste on common weeds along the roadside.

Make a good display of beeswax and comb foundation. Show small pieces of foundation to those speaking of manufactured comb honey, and explain how it is made, and say that

it is all that has ever been done toward making honey-comb.

Make a good display of hives, fixtures, and tools used about the apiary. Queen-rearing outfits should be on hand, for many will ask about rearing queens. Show as many bee-books as possible, and copies of all of the bee-journals. A few price-lists will be called for.

If bee-keepers' societies and bee-keepers themselves, especially those who produce large crops of honey, would take pains and see that every county fair was nicely represented, people would understand more about bees and honey, and there would be far less talk about the manufacture of comb honey and adulteration of extracted honey.

Don't try to make an exhibit out of a basketful of fixtures. The small exhibit I had last year at the fair, to say nothing about pressed flowers, observatory hives, many tools, and small fixtures, amounted to about \$75. I received nine premiums, \$24; paid for entry fees, \$2.50; paid for two season tickets, \$2, leaving a balance of \$19.50.

There is no money made out of the premiums; but remember it costs to advertise. I have worked up a good retail trade for all of my honey, and don't get enough to supply the demand.

Mayfield, N. Y.

THE PENNSYLVANIA STATE MEETING AT HARRISBURG, CONTINUED.

In addition to the account of this convention in the issue for Feb. 15th, we have obtained brief mentions of two other papers that were read, and a copy of the one read by Prof. Frank Benton, which we give here in condensed form.

Rev. H. W. Bender read a paper on "The Honey-bearing Flora of Adams County." This was interesting in that it showed the exactness which any one may reach by taking notes on the honey-bearing flowers of his locality.

Dr. William Friar, chairman of the committee on food standards of the official agricultural chemists, spoke with reference to their work on the proposed definitions and standards of honey. Prof. Benton was asked to reply, and did so, reading the definitions which he proposed as substitutes for those which the committee has provisionally put forward.

In his paper entitled "Improvement of Honey-bees" Professor Benton said, in substance:

This subject naturally divides itself into, first, the selection of a race or breed; second, the selection of individual queens to breed from; third, the methods employed in rearing queens; and, fourth, the selection of drones, or male bees.

SELECTION OF RACE OR BREED.

Caucasians for beginners.—There comes to the mind of the beginner, in many instances, a dread of cross bees and the fearful stinging which may result from unskill-

ful manipulation of bad-tempered races; but since there are bees so gentle as to remove all difficulties in this direction, and which are productive workers, comparing favorably with most others, the beginner would do well to adopt one of these races. The gentlest are the Caucasians, whose manifest place is in popularizing bee-keeping in cities and towns wherein fear of stings is their chief objection. It is quite possible, without the slightest fear of stings, to open the hives at any time during the working season, without the use of smoke, and with no protection to face or hands. The queens are exceedingly prolific, and the workers industrious.

Carniolans for comb honey.—For the highest grade of snow-white comb honey, Carniolan bees, or bees largely composed of that blood, are to be recommended. They are noted for prolificness, hardiness, industry, and gentleness.

The question might be raised why I would not recommend here the Italians, so long and favorably known in this country. While admitting that many strains of the Italians quite exceed others in productiveness, gentleness, hardiness, and honey-yielding powers, I can not in these particulars rank them as averaging equal to the Carniolans. Their disposition to cease brood-rearing, wholly or in part, at critical times, and their great predisposition toward dwindling in early spring, oftentimes makes it very uncertain whether their colonies will be in proper condition for the given harvest. On the other hand, the steady brooding qualities of the Carniolans enable any one who manipulates them rightly to bring them into any given harvest with a large force of field workers.

Cyprio-Carniolans for extracted honey.—By mating Cyprian queens to Carniolan drones a combination is produced of the prolificness, great energy in honey-gathering, and general activity of the best of the Eastern races, with the most hardy, prolific, and gentle of the Western races. The loss in this combination is seen in the somewhat watery appearance of the cappings of the comb honey.

SELECTION OF BREEDING QUEENS.

The greatest possible care should be observed in the selection of the queen-mother, both as regards the queen herself and also the qualities and race-characteristics of her progeny.

The stock.—A man of experience may judge merely by a careful comparison, during a given honey-flow, of the activity and relative amount of honey gathered in his apiary by individual colonies, and should choose from these the gentlest colony which shows the general race-characteristics of the breed to which it belongs.

The queen.—The queen, likewise, must show, in a preëminent degree, her race-characteristics; that is, she must be prolific for one of her race. *I have never found a queen-bee that was too prolific to suit me.*

Along with this I look for strength of body, limbs, and wings.

MANNER OF SECURING CELLS.

If considerable numbers of cells are required, it is always better to have a colony of Carniolan bees, Caucasians, or some one of the Eastern races as cell-builders, since they produce much greater numbers, and are also excellent nurse-bees. The first step is to make queenless a very populous colony. On the third day thereafter the colony may be put into condition to receive queen-cells, which, when built, may be cut out and attached with melted wax at regular intervals on a top-bar. The larvæ ranging in age from forty to sixty hours are to be removed with a slightly bent toothpick, and, in their place, are to be put, with the same instrument, larvæ from twelve to thirty-six hours of age, taken from the colony of the chosen queen. This substitution of young larvæ insures a full amount of food from the very beginning—even a superabundance.

The next step consists in the removal of *all unsealed larvæ* from the populous colony which has been queenless during the preceding two or three days, to force the bees to turn their whole attention to the queen-cells. Should honey not be coming in freely, the colony should be fed daily a pint or more of syrup, and should have an abundance of pollen in the hive. If the weather is cool and changeable, care should be taken to keep the brood-nest warm. The young queens will all emerge $12\frac{1}{2}$ to $13\frac{1}{2}$ days after the transferring or substitution of the larvæ takes place. It will be easy to provide nuclei for the reception of each one of these queen-cells, or a small queen-nursery consisting of wire-cloth cages containing brood. It is by no means advisable to place the cells in a queen-nursery until the young queens are practically at the very point of emergence, since the slightest neglect or chilling at such a time, if not fatal is highly injurious to the future usefulness of the queen.

After emerging, the young queens are to be allowed a period of a week to fifteen days for mating. While queens of the European races usually mate in from five to seven days after emerging, those of Eastern races more often require nine to fifteen days; but in all cases the less confinement after four or five days the better.

SELECTION OF DRONES.

Quite the same care should be given the selection of the drones. It is true that we may not wholly control the mating; but in case a certain race is bred in its purity, and surrounding apiaries are stocked with those of a different type, it will be quite easy to reject any queens that have mated with drones of another race. It is, therefore, decidedly advisable to limit drone-production to queens which have sprung from the best colonies. Repeated experiments in crossing various types have convinced me that the drones have greater influence over the temperament and constitution of the workers than have the queens.

I am thoroughly convinced that, with more heed to the rearing of the highest grade of queens, there would be far less complaint of poor seasons and small honey yields than is now the case.

Washington, D. C., Dec. 5, 1904.

MINNESOTA STATE BEE-KEEPERS' CONVENTION.

BY THE SECRETARY.

[When I stated on page 120 that I had not heard from the secretary in reference to a report of this convention, she had already written us, saying that the report would be forthcoming, but the letter had not come into my department. This report, to a very great extent, will be supplementary to the matter given on page 121.—Ed.]

The largest and most enthusiastic meeting the Minnesota Bee-keepers' Association ever held was the one of December 7 and 8, at Minneapolis. It was held in connection with the annual meeting of the State Horticultural Society. Prominent bee-keepers from seven different States participated in the program, and the room was filled to its utmost capacity at every session.

The chairman of the committee on adulterated honey reported that, of the 96 samples submitted to the State Dairy and Food Commissioner, but nine were found impure, and that he found hearty co-operation on the part of the commission in investigating alleged adulterations of honey.

The matter of co-operation created considerable discussion; and an amendment to the constitution, allowing the association to broaden its work along that line, was proposed but defeated.

The first paper, by Mr. H. V. Poore, of Bird Island, Minn., on "Some Things I have Learned about Bee-keeping," gave some very interesting experiences. Among others he mentioned going to a plum-tree in October to shake down some plums, and finding a swarm of bees which had evidently hung there a long time, as they had built a large comb and filled it with stores. So much for our glorious Minnesota, where one may gather plums and honey at the same time from the same tree.

Mr. McEwen, of Minneapolis, then spoke on "Diseases of Bees and Legislation Pertaining Thereto," particular reference being made to foul brood. The Executive Committee was authorized to make every possible effort to secure the passage of a foul-brood law as soon as possible.

In this connection it is urgently requested that every Minnesota bee-keeper send his name and address to the secretary, Mrs. W. F. Wingate, 3022 South Dupont Ave., Minneapolis, to aid their committee in this work.

The next paper on "Bee-keeping as an Occupation," by Rev. J. H. Kimball, of DeLuth, emphasized the point that those who keep bees should use every possible means to gain a better knowledge of the art by study and observation, and also to enlighten the general public on the progress of the industry.

Mr. V. D. Caneday, of Taylors Falls, a

poultryman of large experience, and also a bee-keeper, gave a very interesting paper on "Poultry as an Adjunct to Bee-keeping." His point was that, as the busy seasons in these two industries did not conflict, they could easily be combined under one management, with both pleasure and profit.

Dr. E. K. Jaques, then followed with the president's address, which was greatly enjoyed.

Mr. C. H. Harlan, of Mora, could not be present, and his paper, "Insuring Bees," was not read. The gist of it was that it was impossible to get insurance on an apiary. With this the Secretary took issue, and gave a recent experience along this line. In August last her home and all its contents was totally destroyed by fire. With it was some 500 lbs. of honey and a large quantity of supplies, for which the insurance companies paid full market price without question.

The clause in the policy read, "while contained in the above described dwelling or on said premises," a limit of \$5.00 being placed on the value of any one colony.

Her forty colonies now in winter quarters are covered in the same way, and it will be noted that, having the policy in this form, makes it good for summer or winter.

Wednesday evening a large audience greeted Prof. Washburn, of the State Experimental Station, who gave a most able and instructive lecture entitled, "The Anatomy of the Honey-bee," illustrated by stereopticon views. It was well worth hearing and seeing.

During a short delay at the beginning, Mr. Abbott, of St. Joseph, Mo., gave a short talk on the "Comb-Honey Canard," and "Honey as an Article of Diet."

Mr. E. R. Root, of Medina, O., followed with his moving pictures, which have been so much enjoyed at other recent conventions. The handling of swarms, dumping them in front of the hives, and even the discomfiture of the bee-keeper when stung, were as real as life.

The Thursday-morning session opened with a paper on "Late Feeding," by Mr. A. D. Shepard, of River Falls, Wis., which was followed by a most interesting discussion.

Mr. Abbott was called upon to give his method of late feeding, which is, giving the bees a pancake of sugar in preference to syrup. His theory is, that bees will never starve if they have stores directly over the cluster, no matter how cold the weather; but they have often been found dead with combs of sealed honey on the sides of the cluster.

Mr. G. W. York, of Chicago, in a well-written paper on "Selling Honey to Grocers" (see Pickings, Feb. 1st issue) made several good points on putting up honey in packages of convenient form for grocers to handle. He is a strong advocate of selling honey through grocers rather than directly to consumers.

Dr. L. D. Leonard, in his paper on "The Size of Hive Relative to the Honey-flow," urged the use of large hives in running for

extracted honey. He considers a large hive one that has the capacity of twelve frames of the common dovetailed variety. Any thing less is a small hive.

When the afternoon session was called to order all present were glad to see and hear E. R. Root, who gave what he was pleased to call "a talk," but which was really a very interesting and instructive address on "Baby Nuclei" and "Package Honey."

Mr. York, of Chicago, Mr. Wm. Russell, and Miss Mary Sinclair, furnished entertainment in song, and dancing in Highland costume that was greatly enjoyed.

The session closed with the election of the following officers for the coming year:

Pres., Dr. E. K. Jaques, Robbinsdale.
Vice-Pres., Mr. Scott Lamont, Jarets.
Tres., Dr. L. D. Leonard, Minneapolis.
Sec., Mrs. W. S. Wingate, Station F., Minneapolis.

MEXICAN BEE-KEEPING.

BY F. A. LOCKHART.

Mr. Root:—I send you by this mail a photograph which was taken in the mountains near Guanajato City, Mexico. It represents a Mexican apiary. The hives are made of a kind of coarse tough grass in the shape of a long round basket. There is a cover for each basket hive, which is put on until the

holds the basket hive up under the cluster of bees and gives the limb a shake, then throws the cloth (which you will see lying on his shoulder in the picture) over the mouth of the hive, and then drops the hive in the shade of a tree and then runs for the nearest shelter. In the evening he takes the hive and places it in the apiary. He has to be very careful to shake the hive well by putting on some old pieces of staves or brush, as the bees would not stay long in one of these queer Mexican hives exposed to the hot sun of that climate.

I must say something about the clothes he wore. He had on a pair of long loose white pants which came up almost to his neck, and no shirt, and a high broad-rimmed Mexican straw hat.

The old coat he had on, shown in the picture, I should say belonged to some one else, as it is quite too large for him. You will notice that the sleeves in the coat are turned back from his hands. He puts that coat on only when about to hive a swarm of bees, so the bees, when shaken from the limb into the hive, will not fall on his bare neck and back.

He wears sandals on his feet. You see about every kind of grass, weeds, or brush in Mexico has some kind of sharp thorn or burr on it; and there are cactuses of many kinds which abound everywhere in Mexico, and they all have sharp thorns.



colony gets established; then it is taken off or it drops off itself, for these Mexican bee-keepers are a rather careless lot. Any old way is good enough for them.

The young Mexican shown in the picture is about to hive a swarm of bees which is hanging on a limb of a near-by tree. He

When ready to take some honey the bees are killed by putting the hive over a brimstone or sulphur pit. It is quite often the case, when moving a hive in the apiary, to find a large rattlesnake coiled up under the hive.

Lake George, N. Y.

DE LUXE HONEY FOR THE MARKET.

A New Industry in Putting up Candied Honey in Retail Packages; the Importance of Catering to a Really Fancy Trade.

BY E. R. ROOT.

The ordinary packages for honey scarcely compare with the packages for holding food stuffs on sale at the ordinary grocery; take for example the beautiful wrappings of breakfast foods. As a general thing, honey put up in bottles nicely labeled is very attractive; but a good deal of the bottled honey on the market has a certain something about it that does not *quite* compare with other bottled goods like syrups, catsups, pickles, and the like. Even the cartons for fancy comb honey look cheap in comparison with the cartons to hold other classes of food stuffs.

In making this general criticism I am aware that, if there is any foundation for it in fact, it applies to the Root Co. as well as to the whole bee-keeping class. But it is high time we were all catering to a more fancy "de luxe" style of package. The fancier and more attractive the package, the fancier the price. It is possible, and legitimate, too, for the producer to double on his honey, for there is always a fancy trade willing to pay the price for a strictly fancy article.

At various times I have had something to say about the possibility of selling granulated honey to the retail trade. Many of our friends have ridiculed the idea. "Absurd!" "ridiculous!" "impossible!" they have said. But we *are* selling such honey to the city trade, and it does not seem to be impossible, absurd, or ridiculous. The illustration on the opposite page shows how the Root Co. is now putting up candied honey. It is an exact duplicate of the packages we are putting out in size, style, and lettering here shown. Indeed, it is gilt-edged; and it is the *only* package that can literally make claim to the title.

This design opposite is printed on some large placards, and hung up in the grocery windows to attract attention. Inside on the counters or in the show-windows nice neat piles of these bricks are laid one upon the other where the customer can see them. Their very novelty attracts attention, and people, out of curiosity if nothing more, are persuaded to buy, take one home, when, presto! they want some more.

Right here I wish to say that the credit of designing this beautiful package largely belongs to our honey-man, Mr. J. A. Warren, who has had a number of years' experience in selling directly to the retail trade. He not only takes charge of putting up the honey, but he is our salesman as well. The honey originally is purchased in square cans candied hard. It is then cut up into rectangular blocks weighing 1½ pounds each, or 48 to the can of 60 pounds. They are then wrapped in paraffine paper to prevent soak-

ing, then another sheet of parchment to prevent breaking. This is then slipped into a paper carton just the right size. Last of all there is a wrapping of white paper, printed in gilt letters, embossed, or raised. The ends are carefully folded over, and secured in position by a little square label with Root's honey trade-mark on it, showing the familiar wreath, the bee-hive, etc. The wording on top, "Wholesome, Delicious, Economical, Healthful," is particularly appropriate and exactly true. The effect of all this is beautiful and attractive.

Any one can figure up what his profits will be on a package of this kind, for himself, for these packages are retailing for 25 cents in Cleveland. Ordinary alfalfa honey in square cans costs anywhere from 6 to 7 cents per pound. Five people in our employ will put up 1000 packages, like the illustration shown here, in a day. That means taking the honey out of the square cans, cutting it up into bricks; wrapping it in two thicknesses of paper, one of paraffine and one of parchment, slipping it into a carton, wrapping it up again, and sealing as shown. A bee-keeper can do all this work with his family in winter, when they can hardly do any thing else to advantage; and when the honey is put up it will stay in that shape for months.

The Root Co. is prepared to furnish the wrappers, the cartons, and the printed matter as shown in this design. Of course, the source, "The A. I. Root Co., Medina, O.," would have to be replaced by the name of the party putting up the honey, who can have his individual trade-mark on the ends of the package. The other wording he can leave just as it is. Or if he wishes to see if his own honey will sell in his own locality we will furnish him the packages already put up, at the prices named in Special Notices elsewhere in this issue. Perhaps this will be the better way until the bee-keeper learns whether there will be a demand for this kind of honey in his locality, or whether he himself is salesman enough to convince the trade that these goods will sell if only given a fair chance.

The large fancy wholesale grocery trade of Cleveland is selling this de luxe honey at 25 cents a package as already stated. Indeed, at this time it is being advertised in all the large dailies of Cleveland, a city of about half a million people.

If the glucose people can put out an inferior food like karo, and make people actually buy it by mere force of advertising, certainly the fancy grocery trade in the large cities can make goods as fine as these go off like hot cakes. Editor York, of the *American Bee Journal*, has emphasized the importance of bee-keepers advertising more — advertising their honey. If more of this were done, and each bee-keeper endeavored to market his own crop to a very great extent, we should hear less of stagnation in prices; for be it known that the honey market at the present time is in a rather bad way.

Delicious Nectar Nature's choicest product Gath.
ered by the honey-bees.



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ECONOMICAL
HEALTHFUL

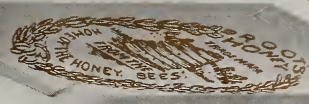


Guaranteed
PURE
Granulated

HONEY



The A.T. Root Co
MEDINA, O.



HOW CAKES OF GRANULATED HONEY, JUST AS THEY COME FROM THE SQUARE CANS, ARE CUT UP INTO BRICKS.

Many of our subscribers have asked just how we cut up the honey into rectangular blocks. I have already explained that we

thin-bladed knife slabs off the bricks thus cut, when they are wrapped as before explained.

These butter-cutters have been on the market for a number of years. They are nicely made, and do beautiful, perfect work.

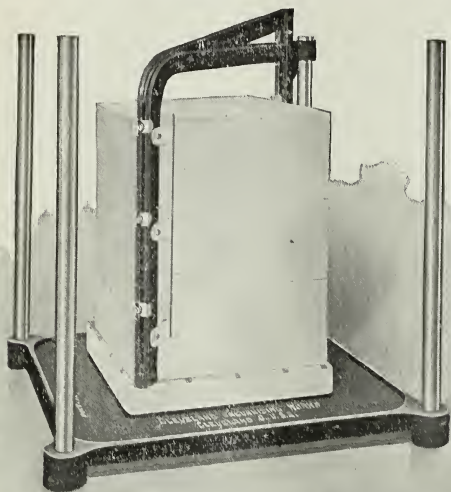
The horizontal frame with its taut wires has holes of just the right size at its four corners to slip over the four upright shafts so that the wires must make an absolutely perpendicular line of progress downward, without swerving to the right or left. Thumbnuts are provided by which the wires may be adjusted to different sizes of bricks, although we prefer to use the one size, which is just right to take up the entire contents of a can of honey, or 48 bricks in all without waste.

Some lots of honey are so solid that it requires half an hour for the frame with its weight to settle through the block. As a general rule, two or three minutes will suffice. While the machine is doing its work of cutting automatically, the operators are busily employed in wrapping up the cake of honey previously cut into bricks, so that no time is lost. As soon as one cake is cut another one is put on, and so on the work proceeds.

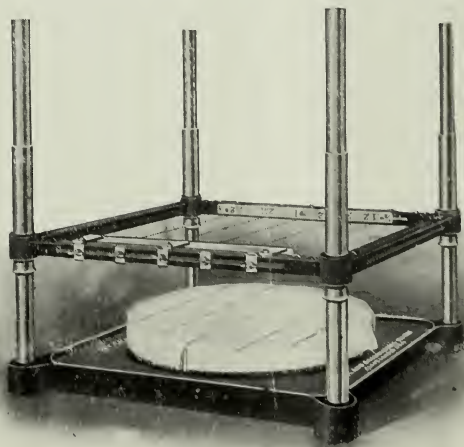
These butter-cutters can be obtained of the Cleveland Galvanizing Works Company, Cleveland, Ohio, and cost \$50.00. The outfit includes what is seen in the two illustrations herewith. The same horizontal plate with the upright standards is used for both horizontal and perpendicular cutting.

Perhaps some may say that the carton

use an ordinary butter-cutter, such as the dairy trade uses. A pair of tinner's snips cuts the tin off from the square can of honey. The sides are peeled off, and the cake is inverted on a large circular porcelain disk, placed on an iron base having four upright standards, one at each corner. An iron frame, swinging on one of the upright shafts as an axis, door fashion, has two or more wires stretched across it at equal distances. This frame is swung with its horizontal wires around the cake of honey just as it comes from the can, the wires, of course, passing *horizontally through* the honey. The buck-saw frame is then removed, and the horizontal frame with taut wires on it at equal distances is then slipped over the four standards, then two 75-pound weights are put on each side. The machine is then left. The combined 150-pound weight gradually pushes the frame with its wires downward, the wires crossing on a perpendicular plane the track already made by the horizontal wires. In the course of two or three minutes the frame, on account of the weight, will have settled clear to the bottom. A



MACHINE FOR CUTTING CANDIED HONEY, AS ADAPTED FOR CUTTING ON HORIZONTAL PLANES.



MACHINE FOR CUTTING UP CANDIED HONEY, AS ADAPTED FOR CUTTING ON PERPENDICULAR PLANES.

and the three paper wrappings are expensive. Perhaps; but if one desires to get a fancy price he must have a fancy wrapping. Sometimes there is a difference of only half a cent between a poor or mediocre package and one that is de luxe or fancy. It is penny wise and pound foolish to economize at this point. If the extra half-cent investment will bring five cents more, or even two or three cents, the money has been well spent.

"Round home" we do not put our honey up in light cartons. For the local retail trade in our village groceries we supply the brick with only two wrappings of paper; but for the outside trade we supply the de luxe package. Where one wishes to use the honey right away, the two wrappings of paper are just as cheap as a paper pag, and answer as good a purpose; but in saying this I do not mean to decry the merits of the paper bag for granulated honey. Where one feels that he can not afford to throw away the square cans, and his honey is already in a liquid condition, he can run the honey off into bags, allow it to candy, and sell it to the trade or consumer direct.

I desire to emphasize the importance of catering to both classes of trade—the kind that knows you and your honey, and who would just as soon have a cheap package and save this cost, and the fancy trade that is perfectly willing to pay a fancy price for a really fancy article. It is this fancy trade that will pay you well for your work; and who, while it may not know it, permits you to double on your money, if you throw out of account the cost of wrapping, creating a market, and collecting accounts. One who goes into this business ought at least to double on his money, for his own time and brains are worth something, and he should be paid for them.



DON'T LET THE BEES STARVE.

By this time in the winter the bees in many Langstroth and other shallow hives will have but little honey, and in some hives none will be left in the center combs; and the bees that are packed on their summer stands won't leave the cluster in cold weather and go to the outside combs in their hives for honey after they have consumed all the stores out of the center, and then death will be the result from starvation. Hundreds of colonies are lost every winter just this way. Can colonies in this fix in midwinter and in cold weather be saved? Yes, they certainly can, and every one of them be brought into spring in grand condition.

I bring combs of sealed honey into the house and hang them for several hours near the self-feeder until the comb is warmed right through. I then go to the colonies short of stores in the *center combs*, and take the packing off the top and put little sticks across the frames, and then from the house bring a warmed comb of honey and place it on its flat right over the cluster, and on this comb I place a few little sticks, and then I put on the queen-excluder and cloth over it, and over this I put four inches of forest leaves, and on this I put the lid of the hive, and over all put the cover of the winter-case. No colony, if taken in time and fixed this way, will die, if the other conditions are right. Those that have no combs of honey on hand can find one in the hives near the sides which have no bees on, and can remove and warm these and place them over the cluster, and by so doing save the bees until the weather gets mild enough for the bees to move through the hive in search of food.

WM. McEVoy.

Woodburn, Ont., Feb. 16.

MIDWINTER FLIGHTS A GOOD THING; CELLAR VENTILATION.

I know from experience that midwinter flights are good things provided you can have the right kind of weather—not much snow, no winds or clouds, and as warm as 55 or 60. Here where I live (South-central New York) we get this kind of a day hardly once in ten years, consequently the very best I can do is to let the bees be out of doors in the fall as late as it is safe to do so, and then set them out the first favorable day after the 15th of March. I winter in a frost-proof building above ground. I usually carry them in the last days of November. If they have had a good flight a short time before, they are usually very quiet up to the middle of February, with the thermometer at from 44 to 46. After that time I find it best to keep it a little cooler, not going below 40. The bees have fresh air the most of the time. If very cold I close the ventilator tight until the weather moderates.

I have used this building for a good many years, with about the same results. The building is divided into two rooms, each about 10×12 inside, eight feet in height. Each room will hold and winter well about 75 hives each. Bees usually winter around here well outside with chaff hives, if kept well packed, and that done in good season. The winter of 1904 was the worst I ever saw. Those that had but few lost all. My hives are all single-walled. I put a little packing on top to get rid of moisture. If I had had the cellar when I made this building that I have now I probably should not have built it.

D. F. LASHIER.

Hooper, N. Y., Feb. 15.

WINTER FLIGHTS.

I see in GLEANINGS that the question of winter flights is being argued. Ernest, you stick to it—you are right. Bees can be

wintered without winter flights, but it pays, every time, to give them one or two each winter. I have had 20 years of experience in this.

G. ROUTZAHN.

Biglerville, Pa., Jan. 30.

A SAFE WAY TO WASH OUT KEROSENE-CANS.

Years ago A. I. Root advised the use of washing-ammonia for this purpose. It is superior to lye or caustic potash (page 32). I can cleanse a five-gallon can with four quarts of hot water. Rinse the can out first, then put two tablespoonfuls of washing-ammonia with a quart of hot water. Do not screw the cap down tight, but shake thoroughly, then screw the cap down tight, turn the top of the can down, and let it stand a few minutes. Then I rinse twice with hot water. Let it stand a day or so to dry.

Morgan Hill, Cal., Jan. 21. M. BRAY.

FEEDING BEES IN WINTER.

I have a hive of bees in a keg in which they were caught, and they are dying. I think that they have no honey to eat. What is the proper way to feed them with sugar?

Rich Hill, O., Dec. 6.

L. J. PAGE.

[The only way to feed in winter is to give the bees a frame of sealed stores or a cake of hard candy made from granulated sugar; but in your case it would not be practicable to give a comb, so you will have to depend on the candy. Bees should not be given liquid feed in winter.—ED.]

NEW ORLEANS MOLASSES FOR STIMULATIVE FEEDING.

How would syrup made from the sugar that settles in the bottom of the barrel of the best grade of New Orleans molasses do for stimulative feeding in the spring?

M. A. AULICK, M. D.

Bradford, Ky., Dec. 13.

[It would answer as well as any sugar for the purpose.—ED.]

THE LEAN-MEAT DIET AND DR. LEWIS.

I certainly owe you a debt of gratitude for having drawn my attention to Dr. J. M. Lewis, Rose Building, Cleveland, Ohio. I went to him in a very bad condition physically. No treatment appeared to avail. I found his treatment, including the lean-meat diet, followed under his direction, highly beneficial; and when he pronounced me cured I felt better than I ever did in my life. I had not a pain, no dullness, could sleep without a break for eight hours, and awake perfectly refreshed. Neither heat nor cold appeared to affect me. If in moving bees I lost a night's sleep and worked 36 hours in succession I felt it less than any one else. It is seven or eight years since I took the treatment, and throughout all that time I have felt lasting benefit. I often advise those with chronic nerve, stomach, lung, and

other troubles, when I have no hope for them anywhere else, to go to Dr. Lewis.

Brantford, Can. R. F. HOLTERMANN.

[This may sound like a patent-medicine advertisement, but it is nothing of the sort. It came unsolicited, and without the knowledge of Dr. Lewis. We give it here because we, too, feel grateful for what the doctor has done for us. There are hundreds of other patients who could say the same thing, and are saying them to their friends. That is why he has such a large practice.—ED.]



Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet I say unto you that even Solomon in all his glory was not arrayed like one of these.—MATT. 6:28, 29.

Our Savior loved flowers. We are sure of this or he would not have said that no human being, even Solomon with all the decoration and fitting-out that money and tailors' skill could produce, had any thing to compare with the simple grace and beauty of the lilies of the field. I have not said any thing for some time about my automatic greenhouse; and, to tell the truth, after I put my plants nearly all outdoors last summer so they did not need very much care or attention, I somehow lost my enthusiasm, especially when my time and energies were all taken up with that flying-machine. I did shut up the greenhouse and collect a few of the most valuable plants, and made some cuttings of the glittering achyranthus that pleased me so much with its gorgeous coloring. But I lost a good many of my plants by a lack of interest and enthusiasm until we began to have winter weather and long evenings. Then when I got tired of my greenhouse I thought of the pleasant evenings I passed the winter before. When I was searching through G. W. Park's catalog of floral seeds which he has for sale, page 153, and noticed a tremendous array of seeds that he had on hand at 5 cents a paper, or 3 cents for mixed, etc., I began to get the fever to grow flowers from seeds.

Now, I have not heretofore had very much luck in growing plants from seeds that are so small you could scarcely see them with the naked eye. But in friend Park's catalog he tells how to start the seeds in the three-inch pots, putting a piece of glass over the top of the pot to keep the surface moist, etc. I made out an order for 16 packages of seeds at 3 cents a paper. Do you want to know why just 16? I will tell you. Sixteen three-inch pots will just fill a box 12 inches square; and a pane of glass a foot square, the size I use for my greenhouse, just covers the box.

In looking over another seed catalog I discovered jadoo was offered in small quan-

tities once more. I found later, however, they were obliged to import it from England, as it is no longer made in this country. Well, although florists in general do not seem to care for jadoo I can hardly get along without it in the greenhouse, especially for starting seeds.

I saw by one of the florist's papers the best sand for cuttings may be found where it is washed up or banked up near any stream. If there is a little brook that runs through your lots or woods, you can get just the nicest material in the world for growing cuttings or seeds by following the stream until you find where it has washed up sand or sandy loam to just the right degree of fineness. If you are not near a stream go to some railroad track and gather up the sand the engineer puts on the track to keep the drive-wheels from slipping. I used this in the winter when every thing was frozen up. If you have no jadoo, the next best thing is some old black rotted manure. Find where there is an old abandoned stable, and get the manure or compost that has got to be so old you can run it through a sieve without any trouble. I use three sizes of sieves for sifting my soil for my plants. For growing seeds I would have about half sand and the other half of this rich black compost. Fill your pots, and press the earth down with the bottom of the larger-sized pot so it will be flat and level. If your seeds are black, cover the surface with fine sifted sand, then you can see how to sprinkle them evenly over the surface. The seeds in a three-cent paper will be just about enough to put in a three-inch pot. Some kinds are so cheap, however, you had better not put in all—they will be too thick. As a rule, the little plants should not be nearer than $\frac{1}{4}$ inch. With the point of a knife you can move the seeds so as to get them about right. You may say this takes lots of time. But if you do it in the long winter evenings the time does not matter so much, and, besides, it is lots of fun—ever so much more fun, in my opinion, than spending time in playing games, because you have something accomplished and something left after you are through besides just the amusement.

Now, covering the seeds is a very nice point indeed. A little of your sifted sand sifted over them with a tiny sieve will do very well; but I like the jadoo or jadoo and sand together a good deal better. Unless the seeds are large you want only a very slight covering indeed—just enough to get them out of sight so your watering does not wash them all together and get them out of place. Larger seeds, say like sweet peas, can be covered $\frac{1}{4}$ or $\frac{1}{2}$ inch. Press down the surface so the top will be flat and level, with the bottom of the same pot you used before. Your potting-soil should be a little moist before commencing. You want it so when you squeeze up a handful it will hang together, but not so wet but that it will crumble down when you throw it on the bench. The soil should be just about as you want it to work nicely in the garden.

After the seeds are planted, put them in this box that holds just 16 pots; or you can put the pots in for that matter, and sow the seeds right in the box. I like better to handle the pots separately. To keep the name of each kind, wet the pot and write the name with an indelible pencil. You need write only enough of the name so you will "catch on." Your catalog and labels will give you the full name, description, etc.

After your seeds are sown, the pots should be pretty well soaked with water, and you can not do this with a watering-pot without making mischief; but by spreading a thin cloth, something like a pocket handkerchief, over the whole boxful you can then use your sprinkler without doing harm. Some writers suggest dipping the pots in water until the water rises just above the surface. But this takes too much time—that is, if you are so careful as not to wash out the seeds, and I think it makes the soil too wet, especially if it is partly jadoo or our black compost. After wetting, put on your pane of glass and set your box where it is a little warm, and dark. You can keep the whole box in darkness until you see some seeds coming through the ground, then you want to put them where it is as light as possible, but not in the direct rays of the sun, especially in the middle of the day. You do not want to bake the ground around the little plants, and at the same time you do not want to keep watering them all the while. Water once in two or three days should be enough, and will be if you keep them in the shade when the sun is shining direct.

Now, I never enjoyed anything in greenhouse work much more than seeing these little plants come up. Some seeds will come up in three or four days; others may take three or four weeks. The Tom Thumb nasturtiums come up about the quickest; the same with others of the tropæolum family. My tropæolums got to be so large that I have just transplanted them into $1\frac{1}{2}$ -inch pots.

I would by all means have some little flower-pots. The smallest are only 30 cents a hundred, and still less by the thousand. Just think of it—three pots for a cent! The next size larger costs only a trifle more. I will tell you why I recommend these little pots. When some little girl or boy comes to your house show him your plants, explaining how they grow. Knock out the soil, which is easily done when you have learned how, and show your visitor the tiny roots. The little white roots that run around the sides of the pot, in contrast with the black compost of jadoo make a very pretty and interesting sight. It will captivate almost any child; and then when you have a lot of plants just make that boy a present to take home for his "very own."

Many plants can be made to blossom in these smallest-sized pots; and this is especially easy if you take off cuttings or slips and grow them in these little pots. The box I have described for three-inch pots is just what you want for a cutting-bed. Put some

of your compost over the bottom to make the bottom moist. This same box will hold a great lot of little plants, and there will be room enough for the plant between the top of the pot and the pane of glass. If there is not, you can raise the glass a little. Of course, this box is to be used when the seed-pots are all removed. The whole apparatus can be used in any window nicely. But in a window you will have to turn the plants around every day, else they will grow over toward the light. My *tropæolums* have to be turned every morning regularly. By afternoon they will be straightened up. The next morning they will be over toward the light. I can tell when a new plant or cutting is going to grow, in just one hour, by watching to see if it turns its leaves over toward the light.

Now, one of the most interesting things in growing plants from seeds is to watch the different-sized seed-leaves. I never saw a geranium seed-leaf in my life until I sowed some geranium seeds. These seed-leaves are, many of them, very pretty; and the little character-leaves that come between the seed-leaves in a few days are just as cute as can be. You can explain to the children it is a baby geranium, and so with the pelargoniums, snap-dragons, petunias, verbenas, salvias, coleis, and all the rest. With the coleis, the plant when it comes through the ground is almost microscopic; and where you have mixed seeds, as I have, what a wonderful thing it is to see the tiny leaves take on their respective colors! I tell the children it is the kind of painting that is done by the finger of God, the great loving Father who gave us these things to study and admire, and to permit us to turn our thoughts toward him, the great giver of all good.

I think I would have little boxes made to take a certain number of each of the pots. When the plant gets its pot so full of roots that they run clear around, sometimes again and again in trying to find more room, then they need to be in a larger pot. Put a little bit of moss in the bottom of the larger pot to keep the dirt from stopping up the hole for drainage; then set the pot with its roots and earth just in the center, and with a spoon put a little soil all around the sides, pressing it down with a thin flat stick. Keep on giving larger pots until your plant is in bloom, or when the weather becomes suitable, so it can go outdoors in the flower-bed.

A shelf in front of the window will do very well. A bay window with light in front and at each side is ever so much better; and a little bit of greenhouse, letting the light come through from overhead (right on top of the plants), is better still. This matter can be arranged with a couple of sashes. In GLEANINGS for last season you will see pictures of my little greenhouse leaning up against the cellar windows, and also one made of cotton cloth instead of glass. Something of this kind can be made very cheaply, and will answer nicely. A cloth-covered structure we use as the weather gets warmer.

Now, I hope you who love flowers, perhaps the little girls and boys as well as the older ones—will get right to work collecting some good potting-soil for starting seeds. You can find a box at the grocery that will be about right, and may be one that will fit a regular-sized pane of glass without any cutting. By the way, this box with the pane of glass over the top is a splendid place for sick plants. They have moist air, and you can give them an even temperature by moving the box where it is warm nights.

Some plants like the coleus, Chinese primroses, and others, sometimes rot off just at the surface of the ground, especially if you have been careless and given them too much water. If you have a forcing-bed—that is, what we call a glass-covered box—you need not feel bad if your plant tumbles over. Just cut away the diseased part, put the rest of the plant in a pot, with moist sand, and, if you keep the sand damp, and never let it dry out, your plant will take root and grow better than it did with the old diseased roots. Where a plant gets broken off by some accident it can be saved in the same way. Of course, you can multiply plants in this way. And please remember, when you get so many you have not room for all, to use them for presents to some deserving boy or girl. I do not know of any thing in this whole wide world so nice for a present or a reward as a pretty little plant in a neat little pot, especially if the plant has buds or blossoms on it.

Another thing, what is there that adds more to the enjoyment of church service or Sunday-school than to have some pretty little plants on the table? If they are in pots you can set them on the table during the service, then bring them home again. They can be used in the same way to put on the table when you have company coming. If some one of the family gets to looking blue and discouraged, say when he is tired or hungry, just hold a pretty little plant up before him and see what a smile it will bring. Don't you believe it is one of God's messengers, sent by him for some great and good purpose to this world of ours? Our text tells us, as I said in the beginning, that the dear Savior loved them and appreciated their wondrous beauty. Is it not fitting and proper, then, dear friends, that we should love them too?

One particular plant that is making me happy just now is the cyclamen, or Persian violet, as it is sometimes called. It was sent me by mail by S. W. Pike, and it looked pretty well wilted down when I unpacked it. I just put it in my box with a glass top, and the next morning it had straightened up its wilted stem and commenced to unfold one of its beautiful flowers. There is a grotesque grace about this plant—not only its blossoms, but it has something about its queer leaves that always gives me a thrill. Friend Pike is the man who makes a specialty of furnishing rooted cuttings for a very small sum of money. He will send you his catalog free by addressing him at St. Charles, Ill.

THE NEED OF BEE-LITERATURE.

BY G. C. GREINER.

During the 30 years of my bee-keeping I have been a constant reader of at least one bee-periodical; at times two, and even three, have been my regular visitors. I always supposed that by keeping in close touch with the writings of our most prominent experts, any bee-keeper would be enabled to keep up with the times. This is one reason why I never, until recently, owned one of our standard text-books on bee culture. Accidentally, for that is all the reason I can assign for it, I ordered a short time ago a copy of the "A B C of Bee Culture," and I must confess I was surprised in more than one way.

When I opened the package I was favorably impressed with its outward appearance. Neat and tasty in its general make-up, it would be a desirable addition to the most scrupulously selected library, especially as its contents are in harmony (as I afterwards found) with the outside.

The next pleasing feature was the point of expense. Comparing the size of the book, its workmanship and the amount of reading matter it contains with the price, it is well worth the money the publishers ask for it; it is within the reach of any moderately stocked-up pocket-book.

But its contents struck my fancy more than anything else. The way it is written—encyclopedia style—makes it an index by itself, so that any subject desired can be readily found. In looking over its pages I find that it is not only an indispensable guide to the beginner, but it is a great help to the veteran of many years' experience. It covers the ground completely, from the first rudimentary principles to the most scientific observations and discoveries of the present day, thus making its perusal interesting as well as instructive to the readers of all classes.

Under the impression of a little over-rated self-estimation we are sometimes inclined to think that we know all that a text-book of this kind contains, or at least all that is of any importance to the successful management of our business. This is an illusion. We may by years of experience and study

become experts in certain lines, but we are not above improvement and progress. There are many good hints found in the "A B C of Bee Culture" which, if heeded and applied to practical use, would benefit any bee-keeper in a greater or less degree.

On the other side, I can not say that I agree in every particular with the writers of the book, and this is only natural consequence. During so many years of toil and labor we form certain habits, become accustomed to certain ways and appliances, that it would be a great hindrance to break off and follow somebody else's instructions. But in my opinion, if the beginner would take the "A B C of Bee Culture" for his guide, and follow its directions to the letter, his way to success would be open.

In closing this little sketch I would not miss mentioning one more fact. The book is profusely illustrated; every department has its share of descriptive illustrations, and the scenic representations at the front and in the back part are exceptionally fine. It is a pleasure to look them over.

Goods arrived yesterday all o. k. The frames are gilt-edge, and A B C book is away beyond what I expected to get. It has the appearance of a book costing double the price. I have looked over the contents carefully, and must say it seems complete. The arrangement is unique. I like the up-to-date-ness of it especially. It pleased me best of anything I have seen of its kind, and I

have kept fairly well posted for over 40 years, and have kept bees in scores of different styles of hives, and have experimented quite a little with bees and hives.

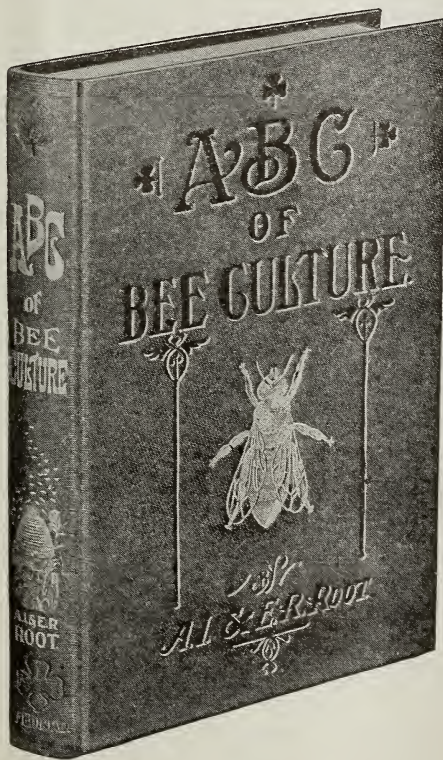
JOHN ESHENFELDER, Eaton, Ind.

How fine it would be for the Hollanders, Belgians, and S. African Boers to have a translation of the new A B C of Bee Culture! It is the most practical and exhaustive work for the apiculturist, and I know of no work in the Holland language equal to it.

ELBERT S. SCHILSTRA,
W. Sayville, L. I., N. Y.

Pastor Reformed Church.

(Our French edition of the A B C of Bee Culture will be ready early this summer (1905). Spanish and Italian editions are already under way, and the suggestion of Mr. S. may lead to a Dutch or German edition.)



THE A B C OF BEE CULTURE

1905 Edition.

Published by The A. I. Root Company, Medina, O.

Its Sale. Probably no other bee-book in any language has had the immense sale the A B C of Bee Culture has enjoyed. The last edition, bringing its sales up to 100,000, is just from the press; and so rapid are the sales that frequently editions have been exhausted before the new ones could be taken from the press. Of the last three or four edition, so great has been the demand that anywhere from 1500 to 2000 copies have been ordered before these editions were even off the press.

Cyclopedia in Style. It contains over 500 double-column octavo pages, bound in cloth, half morocco, or full leather, to suit the taste of the purchaser. It is not an A B C in the sense that it is written for beginners only, but an exhaustive cyclopedia for the veteran as well, covering every subject relating to the practical management of bees. Its rapid sales have made it necessary to revise it at least once in two years, and sometimes oftener. Neither time nor money is spared to bring it clear up to date in every department of our rapidly advancing pursuit; and so extensive have been the changes that many of our customers get a new copy as fast as each new edition is issued.

Standing Type. The whole work was originally set up in standing type, so that it is very easy to add new matter or change o'd, blending the whole into one complete treatise. The latest edition, that for 1905, was revised and rewritten after the reviser had traveled some 10,000 miles among bee-keepers in various parts of the United States to study the methods and practices in vogue among the most successful honey-producers. Photos were taken by him, and the major part of all the material gathered has been incorporated in this volume. The articles are prepared in such a way that they fit every locality in the United States. The subject of Swarming, for instance, has been modified to fit the peculiar conditions as they exist in Texas, California, and the far West, as well as in the Eastern and Central States of the North. The chapter on Wintering now applies to every locality in the country. Then there is a special article on "Location," and its bearing upon methods and practices in different parts of the United States. Besides the methods of management of the bees themselves, the general subject of preparing the crop for market and selling the same is exhaustively considered in all its phases.

New Subjects. Some of the new subjects that have been incorporated in the new edition are the following: Beginning with Bees; Bees as a Nuisance; Bees, Stingless; Bellflower; Black Brood; Foul Brood; Canada Thistle; Candied Honey; Eucalyptus; Gloves for Handling Bees; Guajilla; Logwood; Marigold; Orange-blossom Honey; Organizations of Bee-keepers; Overstocking; Profits in Bees; Queen-rearing; besides a large number of changes, more or less extensive, important ones too, in nearly all of the older subjects.

Authorship. The book was originally written by A. I. Root, who, as far back as 1877, saw the need of a work of this kind. There are still quite a number of the articles remaining written by himself; but ill health, together with interest in other things, made it necessary for him to drop the work he had so grandly started. The general work of revision and keeping the book up to the times has devolved on his son, E. R. Root, who has probably written two-thirds of the work as it now stands.

Index. The book includes a very complete index, so that any subject or division may be easily found. To show how fully it is indexed, here is a specimen, selected at random.

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Illustrations. The book is the most fully illustrated of any work on bee culture.

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